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CONDUCTED

By SAMUEL CURTIS, F. L. S.

THE DESCRIPTIONS

By SIR WILLIAM JACKSON HOOKER, K. H.

LLD. F.R.A. and L.S. Vice President of the Linnean Society, and
Director of the Royal Botanic Garden of Kew.

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1842.

(2741, 2742)

CACTUS COCHINILLIFER. SPINELESS
COCHINEAL FIG.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTI. DIV. OPUNTIAE.)

Generic Character.

Cal. e squamis numerosis, imbricatis, superus. *Pet.* numerosa calyci inserta, interiora majora, basi coalita. *Stigma* multifidum. *Bacca* umbilicata, unilocularis, polysperma. *Semina* intra pulpam nidulantia.

Specific Character and Synonyms.

CACTUS *cochinillifer*; articulis obovatis compressis basi attenuatis inermibus, petalis conniventibus staminibus brevioribus.

CACTUS *cochinillifer*. Linn. *Sp. Pl.* p. 670. Willd. *Sp. Pl.* v. 2. p. 944. Ait. *Hort. Kew.* ed. 2. v. 3. p. 179. Andrews *Repository*, t. 533. Sprengel *Syst. Veg.* v. 2. p. 497 (non C. *coccinellifer*. De Cand. *Plantes Grasses*.).

OPUNTIA *cochinellifera*. Haw. *Syn. Pl. Succ.* p. 192.

OPUNTIA *maxima*, &c. Sloane *Hist. Jam.* v. 2. p. 152. t. 8. f. 1. 2.

FICUS *indica major lævis*, &c. Pluken. *Alm.* p. 146. t. 281. f. 2.

TUNA *mitior flore sanguineo cochinellifera*. Dill. *Elth.* p. 399. t. 297. f. 383.

DESCR. This CACTUS may almost be reckoned arborescent, for it grows to the height of nine feet. The lower and older parts of the *stem* and branches are cylindrical, or but slightly compressed, of a greyish ash colour, and woolly; the younger branches are every where proliferously jointed, their joints varying in size, from four to six inches, to a foot

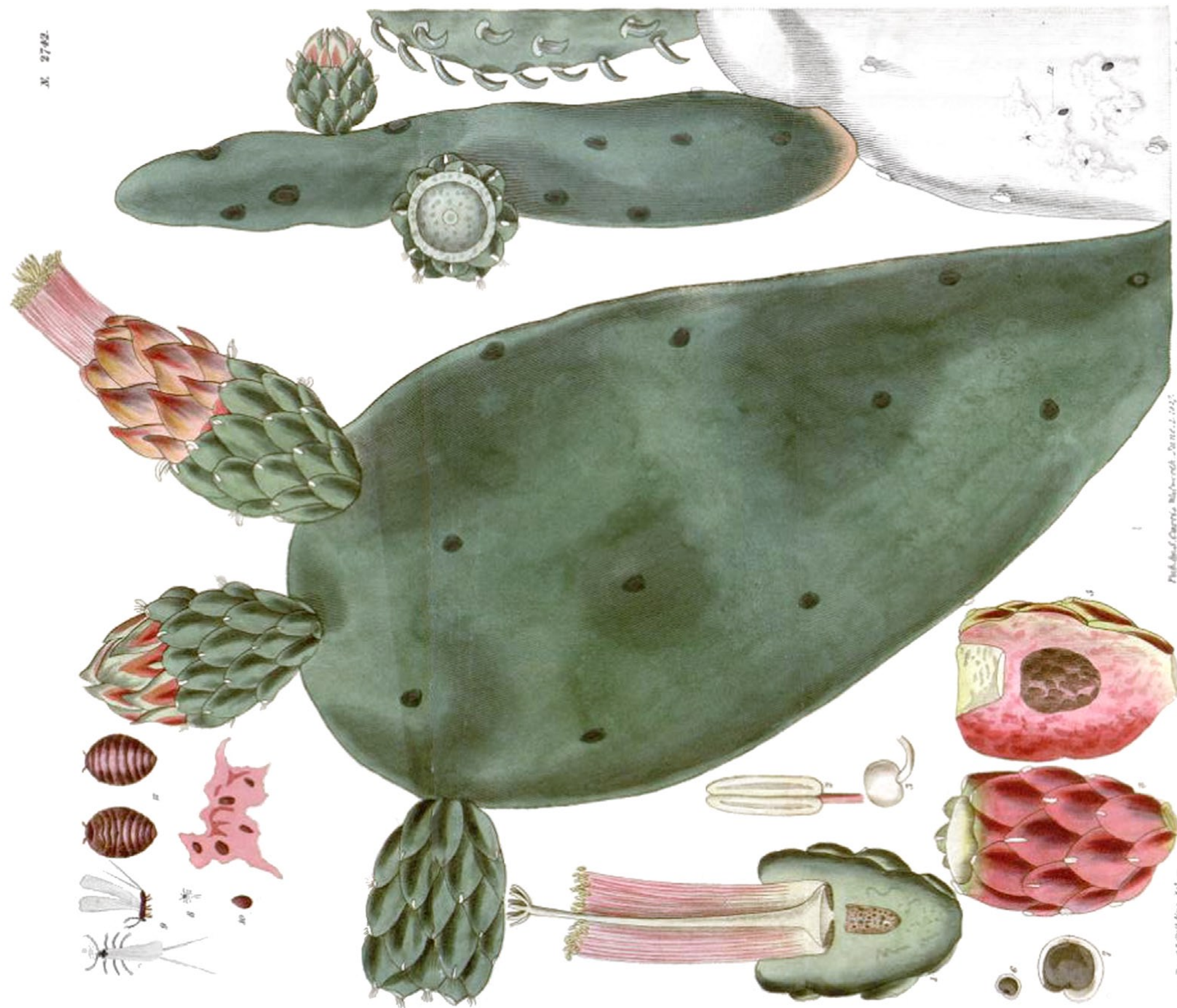


foot in length, oblong or obovate, more or less attenuated at the base, all of them much compressed, flattened, of a deep full-green colour, when young having several scattered, fleshy, curved, subulate leaves, scarcely half an inch long, which soon fall off, leaving a white scar. There are no spines.

The flowers, which are three inches or more long, appear in the joints at the extremities of the branches, and generally at or near their superior margins. The base is occupied by the large, fleshy, obovate, truncated, reticulated, dark-green *germen*, whose areolæ constitute an oblong swelling or tubercle, tipped at the apex by a white scar, whence small leaf-like processes have fallen, and above which is a small fascicle of fine hairs or bristles. This has one cell filled with ovules, attached to a curved seedstalk. *Calyx* of many ovate or obovate, very acute, erect, greenish-red scales, gradually passing into the broader and larger, obtuse, very closely imbricated, connivent, bright rose-colored *petals*. *Stamens* much protruded, very numerous, rose-colored, their base sunk into the top of the *Germen*, forming a cylindrical mass, united below. *Filaments* very slender. *Anthers* oblong, pale yellow. *Style* dilated near the base, but again suddenly contracted at the very base, tapering upwards to the length of the stamens, and terminated by a cup-shaped *stigma*, cut into from five to eight yellow-green rays. After the falling away of the *Calyx*, *Corolla*, *Stamens*, and *Pistil*, a considerable hollow remains on the top of the germen, and this latter, scarcely increasing in size, or altering its form, becomes a *Berry* of a fine red colour within and without, having, in the centre, a number of nearly reniform, compressed *seeds*, enveloped in pulp.

There are few tribes of plants that require illustration, by the aid of the pencil, more than the CACTUSES; they cannot be preserved in the Herbarium, nor so easily described in words, as many other plants. An idea, too, has been very generally current, that they are liable to much variation; but from what we have ourselves seen of them in a state of cultivation, we think ourselves warranted in considering them to be tolerably constant to their character.

With regard, too, to that particular species of CACTUS, which nourishes the Cochineal Insect, much doubt has existed; and we believe it must be allowed that our plant, which was named by LINNÆUS, and has been almost universally called the *C. cochinillifer*, is not that which produces the best Mexican Cochineal; nor are we prepared to
say,



say, of what part of South America it is a native. LINNÆUS speaks of it as indigenous to Jamaica and the warmer parts of the New world; but SLOANE, who gives a very tolerable figure of it, says, that the plants he saw, in Mr. WORLEY'S plantation, were brought from the main Continent of America, by a Spanish priest, and affirmed to be the species on which grew the Cochineal.

We know our present subject to be the true *C. cochinilifer* of LINNÆUS, by his references to various figures, especially to that of DILLENIUS, in the Hortus Elthamensis above quoted; and that author considers it may be the same as the *Nocheznopalli* or *Nopelnochetzli*, figured in HERNANDEZ; except that, in the latter plant, the flowers are spreading, whilst in our's, the petals are connivent. He does not say where it is indigenous. In the Chelsea garden according to RAY, it was cultivated prior to 1688, and was received from Barbadoes.

ULLOA, not upon his own authority, as it appears, but on that of well informed travellers, states, that the *Cochineal Cactus* has no spines, and a fruit imbued with a deep-red pulp. This is partly contradicted by CLAVIGERO, who says, "in Misteca, where I was for five years, I always saw the insect upon prickly Nopals. M. de RAYNAL imagines that the colour of the Cochineal is to be ascribed to the red fig on which it lives; but that author has been misinformed; for neither does the Cochineal feed upon the fruit, but only upon the leaf, which is perfectly green; nor does that species of Nopal bear *red*, but *white* figs." It is true, CLAVIGERO adds, "it may be reared upon the species with a red fig; but that is not the proper plant of the Cochineal."

DE CANDOLLE, in his beautiful work entitled "Plantes Grasses," has given, as the *Cactus Coccinellifer*, the *C. Tuna* of LINNÆUS, a plant totally distinct from the Linnæan *cochinillifer*, and whose flower is of a different structure.

THIERRY de MENONVILLE, who so courageously procured* the

* This circumstance is thus related by Dr. BANCROFT, in his valuable "Researches on the Philosophy of Permanent Colours." In the month of January, 1777, M. THIERRY de MENONVILLE left Port au Prince, in St. Domingo for the purpose of procuring some of the living Cochineal Insects in Mexico, and bringing them away to be afterwards propagated in the French West India Islands; an enterprize, for the expense of which four thousand livres had been allotted by the French Government. He proceeded by the Havana, to la Vera Cruz, and was there informed, that the finest Cochineal Insects were produced at Guaxaca, distant about seventy leagues. Pretending

the Cochineal Insect and the CACTUS from Guaxaca, and transported them to St. Domingo, and who unquestionably had the best means of determining the kinds of CACTI, cultivated for the Insect, describes particularly three sorts, on which it may be reared and cultivated to advantage.

1. The CACTIER *Nopal*; upon which alone the Cochineal is reared in Mexico, both the fine and the common Cochineal (la Cochenille *fine et sylvestre*) although there are throughout the country, many other kinds of CACTUS. The two following, therefore, it is presumed, are employed in St. Domingo.

2. The CACTIER *Splendide*; which may be used to equal advantage with the former; and

3. The CACTIER *de Campêche*.

Of these, the first, as far as can be determined by description, for the writer had never seen the flower or fruit, is the CACTUS *Tuna* of LINNÆUS; *C. coccinellifer* of DE CANDOLLE.

The second appears from the account to be very similar to the former, but larger in its joints (some of them thirty inches long), and very glaucous.

The third, the *C. de Campêche*, is, I think, without a doubt, our *C. cochinillifer*, for his whole description, and especially the flowers and fruit entirely correspond; and he

ill health, he obtained permission to use the baths of the river Magdalena; but instead of going thither, he proceeded, through various difficulties and dangers, as fast as possible, to Guaxaca; where, after making his observations, and obtaining the requisite Information, he affected to believe that the Cochineal Insects were highly useful in compounding an ointment for his pretended disorder (the gout), and therefore purchased a quantity of Nopals, covered with these Insects, of the fine or domestic breed, and putting them in boxes with other plants, for their better concealment, he found means to get them away as Botanic trifles, unworthy of notice, notwithstanding the prohibitions by which the Spanish Government had endeavoured to hinder their exportation; and being afterwards driven by a violent storm into the bay of Campeachey, he there found and added to his collection a living CACTUS, of a species which was capable of nourishing the fine domesticated Cochineal after which, departing for St. Domingo, he arrived safe, with his acquisitions, on the twenty-fifth of September, In the same year, at Port au Prince. Though almost unaided, M. THIERRY de MENONVILLE, there persevered in cultivating, not only the *fine* Cochineal (which he brought from Mexico) but also the *Sylvestre*, which he afterwards found wild in St. Domingo, and so successfully, that in 1789, there were more than four thousand plants in a single Nopalery, the produce having been ascertained by chymists to be equal in quality to that of Mexico. The political troubles in St Domingo consequent upon the French Revolution, caused the total destruction of these plantations.

he says of it, from his own experience, that it may be usefully employed for rearing the COCHENILLE *sylvestre*, and may even support a small quantity of the fine kind.

The celebrated HUMBOLDT also, although he allows that it is the plant upon which the Cochineal has often been sent to Europe, asserts, that our CACTUS *cochinellifer* is not the individual of the Mexican Nopalerias, which he makes a new species, under the name of *C. Bonplandii*; and he quotes under it, with a mark of doubt, the CACTUS *Tuna* of LINNÆUS.

At Rio de Janeiro, when that place was visited by the Chinese Embassy, under Lord MACARTNEY, there were considerable plantations of CACTUS, for rearing the Cochineal, which had some time previously been introduced into Brazil; and the plant, which is the CACTUS *Tuna*, is represented on the twelfth plate of the Atlas of that work.

I shall further, upon the subject of the kinds of CACTUS employed in rearing the Cochineal, only add, that my excellent friend, the Rev. L. GUILDING, who sent me most splendid drawings of this particular CACTUS, and from which most of the accompanying figures were executed, wrote me two years ago from St. Vincent, "I possess a considerable nursery of this CACTUS inhabited by thousands of the true *Coccus Cacti*; and I do not despair of being able to send to the Society of Arts a large quantity of dried insects, before the termination of the present year." In the East Indies also, the Insect. has been extensively propagated; but we have not had the means of knowing whether successfully or otherwise.

From all this, we think it may be inferred, that, in Mexico and Brazil, the CACTUS *Tuna* is the favorite food of the Cochineal; and that in the West Indian Islands, where the *C. Tuna* is, perhaps, less frequent, the *C. cochinillifer* is employed by the natives, and answers the purpose sufficiently well.

Mr. GUILDING, indeed, thinks it probable that the *C. cochinillifer* was introduced to St. Vincent's, from Mexico; but he is, perhaps, led to this supposition, from the generally prevalent idea, that it is the species, on which the Cochineal of the Mexicans is reared.

Like all its congeners, *C. cochinillifer* increases readily by having the joints stuck into the ground; and the plant loves dry and barren spots. If cultivated for the purpose of rearing the *Coccus*, it must be defended, at least in the rainy island of St. Vincent, from storms and winds, by sheds placed to windward. It there blossoms all the year.

The

The flowers, from which some of the dissections here given were drawn, were produced in the stove of the Glasgow Botanic Garden, in September, 1826.

The Cochineal Insect, which feeds upon the kinds of *Cactus* just mentioned, is too well known to need a particular description here; as are also its valuable properties in producing the dye, which bears its name, and carmine. It is the *Coccus Cacti* of LINNÆUS, a small Insect of the order *Hymenoptera*, having a general appearance not very dissimilar to that of the Mealbug of our gardens, and equally covered, with a white powdery substance. The male is winged. It is originally a native of Mexico, and was cultivated for its precious dye, long before the conquest of that country; and these plantations, called *Nopaleros*, are most extensive in the Misteca and Oaxaca: the latter district alone has exported, according to HUMBOLDT, upon the average, 32,000 arobas annually, estimated at 2,400,000 piastres, above £500,000 sterling.

A representation of a Mexican Nopalery, is given in SLOANE'S *Jamaica*, vol. 1, t. 9, front a drawing, made at Guaxaca, by an Indian: that author, however, particularly states, that though the plant be a kind of *prickly pear*, it has no thorns. In these small plantations or enclosures, they cultivate, either the line sort (*Grana fina* of the Spaniards) or the common kind (*Grana sylvestre*), which differ, by the first having a finer quality, and more powdery covering, whilst the latter, less valuable in its produce, has a cottony covering, but whether or not these two insects be specifically distinct, has not been determined. The placing of the females, when big with young, upon the CACTUS, is called the sowing. The proprietor of a *Nopalery* buys in April or May, the branches or joints of the *Tunas de Castilla* (CACTUS *Tuna*?); which are sold in the markets of Oaxaca, at about three francs a hundred, loaded with young Cochineals. (*Semilla*). These are kept in cellars for twenty days, when they are exposed to the air, suspended under a shed. So rapid then is the growth of the insect, that by August or September, the females are big with young, and ready for the sowing, which is done in small nests, made of the fibrous parts of the foliage of a *Tillandsia*, called *Paxtle*. In four months from the time of sowing, the harvest commences. The insects are brushed off, with a squirrel's or deer's tail, by women, who sit during this operation, for whole hours, at one Nopal plant; so that, were it not for the extreme cheapness of labour in that country.

country, HUMBOLDT assures us, that the rearing of Cochineal, would prove an unprofitable employment. After being gathered, the insects are killed by boiling water; or by exposing them in heaps to the sun; or by means of the vapour baths of the Mexicans (*temazcalli*); and when dry, they are fit for exportation. By the latter method, the powdery substance is preserved, which increases the value of the insects in commerce.

Doctor BANCROFT has estimated the annual consumption of Cochineal in Great Britain only, at about seven hundred and fifty bags, or 150,000 lbs., worth £275,000, "a vast amount," as the authors of the introduction to Entomology observe, "for so small a creature, and well calculated to shew us the absurdity of despising any animals, on account of their minuteness." According to the same writers, the only kind of Cochineal that has been conveyed to the East Indies, is the *Sylvestre* from Brazil; and the Court of Directors of the East India Company offered a reward of £6,000 to any person who should introduce the more valuable sort.

Since our plate and description of this plant were completed for publication, unfortunately, too late to render that justice to them which the subject required, we have been most obligingly favoured by W. T. AITON, Esq. with a drawing and specimens of the Insects, from the Royal Gardens at Kew; which we have added to our plate. Their introduction to the Royal Gardens was in the year 1814, from Martinico, by Mon. CATELNEAU d'AUROS, late superintendent of the Botanic Garden on that island.

Tab. 2741, A. entire plant, much reduced.

Tab 2742, B. f. 1. Section of the Flower, natural size. 2. Anther, magnified. 3. Ovule ditto. 4. Ripe Fruit, and 5, Section of ditto, and 6, Seed from ditto, natural size. 7. Seed, magnified. 8. Male Cochineal Insect (*Coccus Cacti*) natural size. 9. Two of the same, magnified. 10. Female Insect, *natural size*. 11. Two of the same, *magnified*

CACTUS FLAGELLIFORMIS. CREEPING CEREUS.

Class and Order.

ICOSANDRIA MONOGYNIA.

Generic Character.

Calyx 1-phyllus, superus, imbricatus. *Corolla* multiplex. *Bacca* 1-locularis, polysperma.

Specific Character.

CACTUS *flagelliformis* repens decemangularis. *Linn. Syst. Vegetab.* ed. 14. p. 460.

CEREUS *flagelliformis*. *Miller's Gard. Dict.* ed. 6. 4to.



Illustrated by W. Curtis, Botanic Garden, London, and H. Marshall

Grows spontaneously in South-America, and the West-Indies, flowers in our dry stoves early in June, is tolerably hardy, and will thrive even in a common green-house, that has a flue to keep out the severe frosts.

It is superior to all its congeners in the brilliancy of its colour, nor are its blossoms so fugacious as many of the other species.

No plant is more easily propagated by cuttings; these Miller recommends to be laid by in a dry place for a fortnight, or three weeks, then to be planted in pots, filled with a mixture of loam and lime rubbish, having some stones laid in the bottom of the pot to drain off the moisture, and afterwards plunged into a gentle hot-bed of Tanners bark, to facilitate their rooting, giving them once a week a gentle watering: this business to be done the beginning of July.

It is seldom that this plant perfects its seeds in this country: Miller relates that it has borne fruit in Chelsea gardens.

N.2393.

(2393)

CACTUS OPUNTIA. COMMON DWARF
INDIAN-FIG.

Class and Order.

ICOSANDRIA MONOGYNIA.

Generic Character.

Cal. 1-phyllus, superus, imbricatus. *Cor.* multiplex. *Bacca* 1-locularis, polysperma.

Sect. IV. OPUNTIAE, compressæ, articulis proferis.

Specific Character and Synonym.

CACTUS *Opuntia*; articulato-prolifer, laxis, articulis ovatis, spinis setaceis. *Sp. Pl.* 669. *ed. Willd.* 2. p. 943. *Hort. Kew, ed. alt.* 3. p. 178. *Knorr. Thesaur.* 1. tab. *F. a. Kniph. Cent,* 8. n. 19. *Dec. Plant. Grass. Link. Enum. Hort. Berol.* 2. p. 23.

OPUNTIA foliis ovatis compressis, spinis setaceis. *Hall, Hist. n.* 1099.

OPUNTIA *vulgaris*; reptans, prostrata, articulis ovatis, spinis uniformibus numerosissimis piliformibus. *Haworth Succul.* p. 190,



The genus CACTUS, as constituted by LINNÆUS, contains plants extremely different in habit, but similar in their characters as taken from the parts of fructification, on which account LINNÆUS has united them into one genus, only dividing them according to their habit into different sections. HAWORTH has again separated them into as many distinct genera.

CACTUS *Opuntia* is a native of America, and, although now indigenous in many parts of the south of Europe, and in Barbary, was probably originally brought from thence.

This species is sufficiently hardy to bear our winters without

without protection, provided it is planted in a dry soil, it is well suited to ornament rock-work, in which situation, in the Chelsea garden, the plant from which our drawing was taken has stood several years.

Flowers in June and July. Propagated by the articulations. Cultivated by GERARD in 1596. Communicated by Mr. ANDERSON.

CACTUS POLYANTHOS FREEE-FLOWERING
CACTUS.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—NOPALÆ.)

Generic Character.

Cal. e squamis numerosis, imbricatis, superus. *Petala* numerosa calyci inserta, interiora majora, basi coalita. *Stigma* multifidum. *Bacca* umbilicata, unilocularis, polysperma. Semina intra pulpam nidulantia. DIV. OPUNTIÆ.

Specific Character and Synonyms.

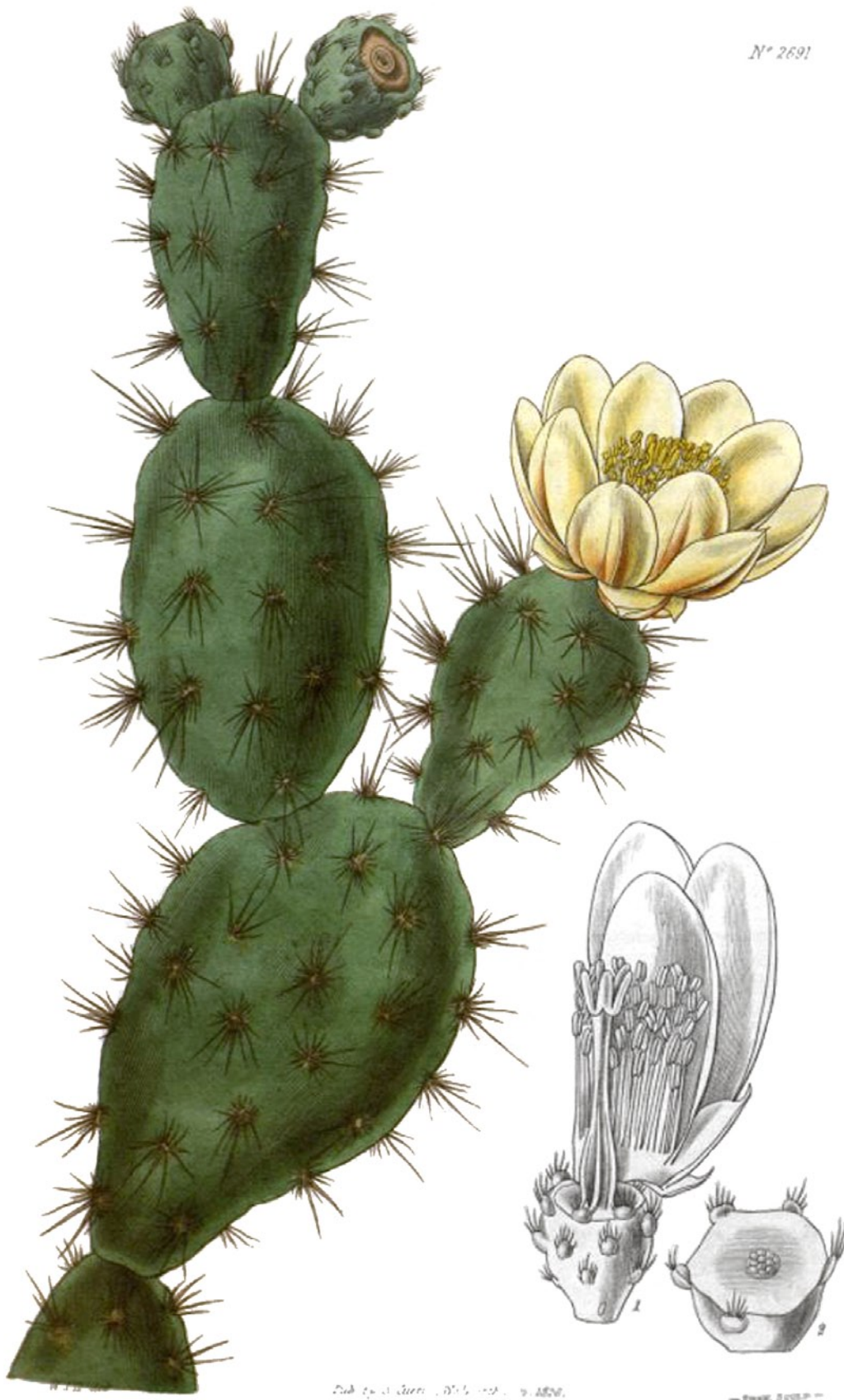
CACTUS *polyanthos*; articulis obovatis Spinis subtenuibus, majoribus subulato-setaceis (fuscescentibus) patulis, minoribus circinnatis setaceis.

OPUNTIA *polyanthos*. Haw. *Syn. Pl. Succ.* p. 100.

CACTUS *Opuntia polyanthos*. De Cand. *Plante Grasses*, t. 138.

CACTUS *Opuntia*, γ, *polyanthos*. Pers. *Syn. Pl.* v. 2. p. 23.

DESCR. *Stems*, in our plant, two to three feet high, proliferously branched: *joints* front two to four inches long, obovate, compressed, dark green, with numerous clusters of spines of two kinds, the largest five to eight in number and four or six lines long, subulato-setaceis, standing out in a very patent manner, the smaller ones are short, setaceous, and form a circle around the base of the larger ones. The *Flowers* are rather large, showy, terminal, in our specimens one or two on a joint, in De CANDOLLE's figures many are represented from the same joint. *Calyx*; *scales* small, brownish, but gradually passing into the large sulphur-yellow petals of the corolla. *Stamens* numerous erect, shorter than the petals, united at the base along



along with the base of the petals and calyx. *Anthers* oblong, yellow. *Germen* large, obovate, fleshy, with scattered, distant, ciliated, fleshy scales. *Style* swollen and angular at the base, the rest columnar, scarcely, reaching to the top of the stamens. *Stigma* of six, nearly erect, yellow segments or rays.

A native probably of South America, and, we believe, an old inhabitant of our stoves, where it flowers in the month of July, more readily than most of the species of the genus.

Professor DE CANDOLLE, who made it a variety of the old CACTUS *Opuntia*, nevertheless considered that it ought, probably, to rank as a species. With us, it is constant to all the marks described and figured by M. DE CANDOLLE, except in having a considerable number of flowers crowning the stem; a circumstance perhaps attributable to the greater luxuriance of his plant.

DE CANDOLLE observes that this species and all its affinities possess a great degree of irritability in the stamens, if touched or shaken when the blossoms are in perfection.

Fig. 1. Flower, with part of the Calyx and Corolla removed to shew the stamens and pistil. 2. Section of the germen.—Both magnified.



(2306)

CACTUS SPECIOSISSIMUS. CRIMSON-FLOWERED
TORCH-THISTLE.

Class and Order.

ICOSANDRIA MONOGYNIA.

Generic Character.

Cal. 1-phyllus, superus, imbricatus. *Cor.* multiplex. *Bacca* 1-locularis, polysperma.

Specific Character and Synonyms.

Sect. III. CEREI, stantes per se.

CACTUS *speciosissimus*; caule erecto 3—4-gono: angulis dentatis, flore campanulato patente, genitalibus declinatis, stigmatibus decem geminatis. *Defontaines in Mém du Mu. d'hist. nat. 3. p. 190. t. 9. Bot. Reg. 486.*

CACTUS *speciosus*; erectus, leviter quadrangularis, angulis dentatis. *Willd. Enum. suppl. p. 31.*

The late Professor WILLDENOW, in a supplement to his Enumeration of the plants of the Berlin garden, has divided the genus CACTUS into eight sections, viz. ECHINOCACTI, Hedgehog or Mammillary Thistles. 2. MELOCACTI, Melon Thistles. 3. CEREI, Torch Thistles. 4. CEREI REPENTES, Creeping Cereuses. 5. RHIPSALIDES, Pendulous Cereuses. 6. OPUNTIAE, Indian-Figs. 7. PHYLLANTHI, Spleenwort-like Indian-Figs. 8. PERESKIAE, Barbadoes-Gooseberry. These Sections have by some botanists been separated into nearly as many genera; Mr. HAWORTH makes seven distinct genera, retaining the name of CACTUS for the second of the above only, and uniting the third and fourth under that of

of CEREUS. To the first section he gives the name of Mammilaria, and to the seventh that of EPIPHYLLUM, Phyllanthus being already occupied. His other genera all retain the names given to the different sections:

CACTUS *speciosissimus*, belongs to the third section. This plant having been already published under this name in the Mémoires of the museum of Natural History and in the Botanical Register, we adopt it to prevent confusion, though that of *speciosus* has the right of priority. The *speciosus* of M. BONPLAND was first described and accurately characterized by M. DE CANDOLLE under the name of *phyllanthoides*, (vide supra n. 2092,)

Native of South America. Requires to be kept in the dry stove and treated as other tender succulents.

Introduced from Paris by the Count DE VANDER, in whose collection Bayeswater the plant from which our drawing was taken flowered in great perfection, in July last, as it had done the preceding year. The gardener remarked that the red streak to be seen in our drawing below the flower-bud, constantly denoted the tubercles from which the flowers would proceed, and this some time before the appearance of the bud.



(1884)

CACTUS TRIANGULARIS. TRIANGULAR CREEPING
CEREUS, OR STRAWBERRY PEAR.

Class and Order.

ICOSANDRIA MONOGYNIA.

Generic Character.

Cal. 1-phyllus, superus, imbricatus. *Cor.* multiplex. *Bacca* 1-locularis, polysperma.

Specific Character and Synonyms.

CACTUS *triangularis*; repens *triangularis*. *Wild. Sp. Pl.* 2. p. 942. *Jacq. Amer.* 152. *Risler in Act. Helv.* 5. p. 268. *t.* 2. *Hort. Kew. ed. alt.* 3. p. 178. *Mart. Mill. Dict. n.* 16.

CACTUS *triangularis scandens articulatus.* *Hort. Cliff.* 182.

CACTUS *debilis brachiatus æqualis triquetrus scandens s. repens spinis brevissimis confertis.* *Brown Jam.* 238.

CEREUS *americanus triangularis radicosus.* *Bradl. Succ.* 1 p. 4. *t.* 3. *Trew in Act. Nat. Cur. v.* 9. *App.* 199. *t.* 10. *f.* 14. *et v.* 10. *App.* 349. *t.* 3.

CEREUS *Scandens minor.* The Prickly Pear-Vine. *Hughes Barbado.* p. 186.?

JAMACARU 1. *Pis. Ind. Hist.* p. 188. cum figura pessima.

MELOCACTUS *trigonus, brevibus aculeis minutus, flore albo, fructu coccineo.* *Plum. Ic.* p. 193. *t.* 200 *fig.* 1. *Plum. Catal. Pl.* p. 19.

We are indebted to Mr. STORRER, of Storrer-Park, near Henley-upon-Thames, for the opportunity of giving our readers a figure of this plant, which is so rarely known to blossom out of the tropical countries, of which it is a native, that in most places it has been cultivated above twenty years before it shewed the least disposition to produce flowers.

As this flower is so very transitory, lasting during one night only, there is no chance of any opportunity of taking a drawing, unless the artist is at hand. To afford us this opportunity Mr. STORRER very liberally cut off the joint, a few days

days before the bud was expected to open and sent it to us; which being set in water, the flowers began to open in the evening, and by midnight was fully expanded.

The first account we have of one of these plants flowering in Europe. is by Dr. TREW, in the ninth volume of the *Acta Naturæ Curiosorum*; where there is an incorrect figure of one which flowered in the garden of the university of Altorf, in the Canton of Uri, in the year 1747; but it had flowered many year before in Germany. and about the same time at Vienna, in the garden of Prince. EUGENE. A better figure is given in the tenth volume of the same work. But the best representation of the flower, is by Dr. RISLER, from a plant which had been many years in his father's stove, but at the time or its blossoming, was in the possession of the Syndic HOFER, of Muhlausen.

In this country it first flowered at Hampton-Court, and at the Marquis of ROCKINGHAM's: in the former place it appears to have been cultivated seventy years, before it produced any flowers, being in the collection there in 1690, and not having blossomed in England, according to MILLER, in 1759.

Perhaps the reason of its having been more shy of flowering here than on the Continent is, that the wetness of our summers have hardly admitted of the plant's being entirely exposed to he open air during the summer months; which Dr. RISLER. recommends, and so all the flowering plants, above mentioned, appear to have been treated.

As most or all of this family grow naturally in a poor arid soil, they should be planted in a mixture of lime, rubbish, and sand, with a small proportion of loam, and the bottom of the pot to one-third of its whole depth should be covered with broken potsberds in layers, gradually finer towards the top. They are propagated by cuttings, which should be kept in a dry place for a month before they are planted. In the winter, the dry stove is recommended, and, if in the bark-stove, they should not be watered at all. When the weather is dry and warm, it is far better that they should be entirely exposed to the open air. Flowers in July, August, or September.

CACTUS TUNA (γ) NIGRICANS. LESSER
BLACK-SPINED INDIAN-FIG.

Class and Order.

ICOSANDRIA MONOGYNIA.

Generic Character.

Cal. 1-phyllus, superus, imbricatus. *Cor.* multiplex. *Bacca* 1-locularis, polysperma.

Specific Character and Synonyms.

CACTUS *Tuna* (*Opuntia*) articulis ovato-oblongis, spinis fubulatis.

(α .) *flava*.

OPUNTIA *Tuna*, erecta, articulis late ovato-oblongis, spinis fubulatis longis flavis. *Haworth Succulent. p.* 188.

TUNA major spinis validis flavicantibus, flore gilvo. *Dill. Elth.* 396. *t.* 295. *f.* 380.

CACTUS *Tuna*. *Willd. Sp. Pl. 2. p.* 944. *Mart. Mill. Dict. 20. Hort. Kew. ed. alt. 3. p.* 179.

CACTUS *Opuntia, tuna*. *Decand. Pl. grasses.*

(β .) *elatior*.

OPUNTIA *elatior*; erecta, articulis late ovato-oblongis, spinis fubulatis longissimis nigricantibus. *Haworth l. c. p.* 187.

Mill. Dict, ed. 8. n. 4.

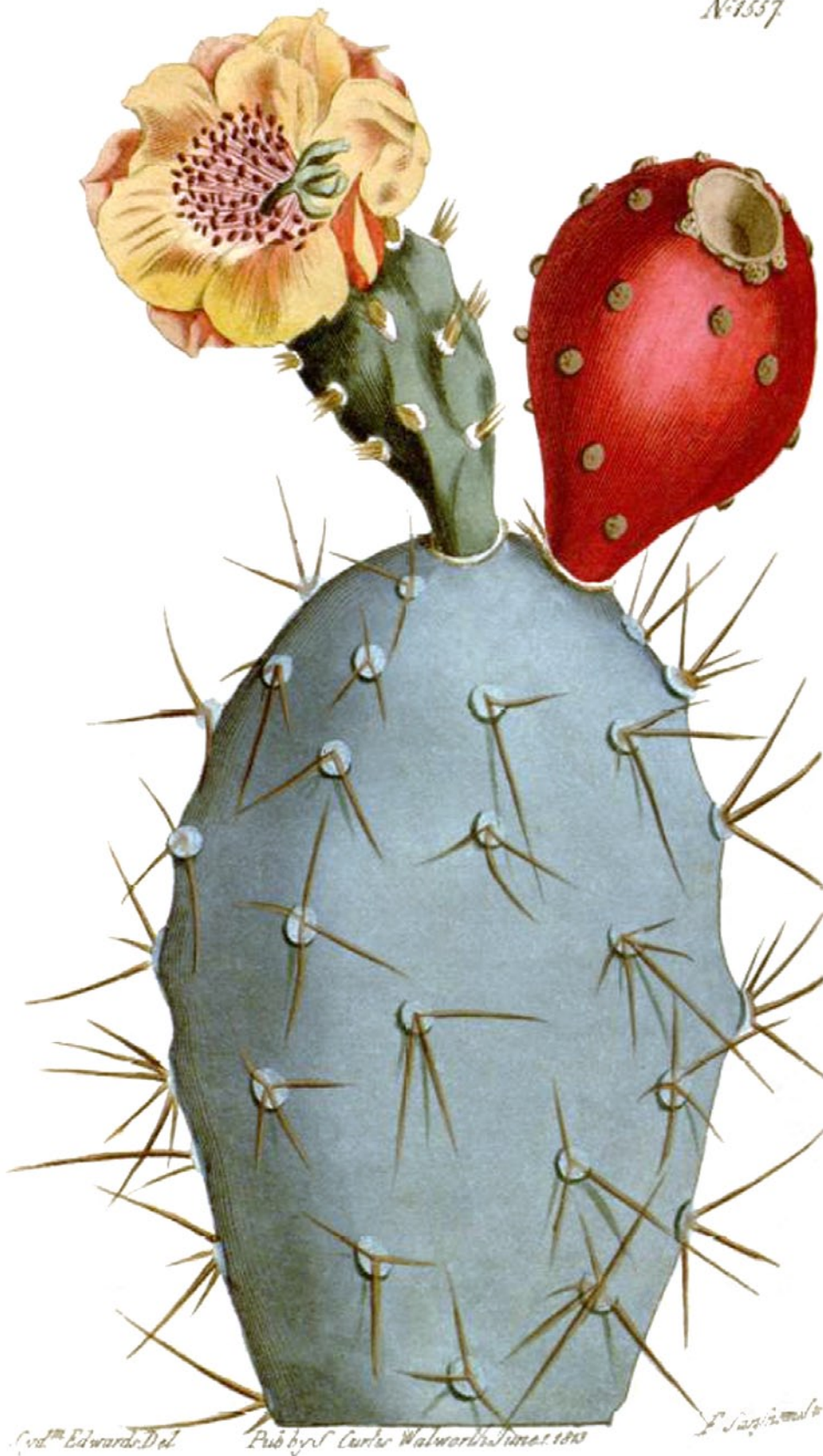
CACTUS *Tuna* β . *Willd. Sp. Pl. 2. p.* 944. *Hort. Kew ed. alt. v.* 3. *p.* 179.

TUNA *elatior*, spinis validis nigricantibus. *Dill Elth.* 395. *t* 294. *f.* 379.

(γ .) *nigricans*.

OPUNTIA *nigricans*; erecta, articulis oblongis lanceolatifque, spinis diversiformibus fulvo-nigris; majoribus divaricatis 3—10 linearibus. *Haworth l. c. p.* 189.

CACTUS *nigricans*. *Haworth in Misc. Nat. p.* 137.



Mr. HAWORTH, in his Synopsis of succulent plants, has restored the old genera of CEREUS and OPUNTIA which
LINNÆUS

LINNÆUS united with CACTUS. We do not condemn this separation of a genus grown too unwieldy; but as it has not been followed in the new edition of AITON's Hortus Kewensis, and we cannot find, in Mr. HAWORTH's generic definitions, characters that appear to us sufficiently discriminative, we prefer adhering to the Linnean division of the genus into sections, easily distinguished by their habit; till future observations shall point out liable distinguishing characters in the fructification, that may accord with the difference in habit; which neither LINNÆUS nor JUSSIEU were able to effect.

LAMARCK and DECANDOLLE consider all the *Opuntia* as one species, consisting of many varieties, which are at least not to be distinguished by the characters hitherto given.

Our drawing was made from a plant communicated by Mr. HAWORTH, in August 1811. The fruit was added in the following year.

(3598)

CEREUS ACKERMANNI. ACKERMANN'S
MEXICAN CEREUS.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACEÆ.)

Generic Character.

Sepala numerosissima imbricata basi ovario adnata, in tubum elongatum concreta, exteriora breviora calycinalia, media longiora colorata, *intima* petaliformia. *Stam.* numerosissima cum tubo concreta. *Stylus* filiformis apice multifidus. *Bacca* sepalorum reliquiis areolata tuberculosa aut squamata. *Cotyledones* nullæ?—Frutices *carnosi elongati axi ligneo interne medullifero donati, angulis verticalibus spinarum fasciculos gerentibus regulariter sulcati.* Anguli seu alæ nunc plurimæ, nunc paucissimæ, rarius duæ tantum et tunc rami compresso-alati. Flores ampli e spinarum fasciculis aut crenis angulorum orti. D. C.

Specific Character and Synonyms.

CEREUS (Phyllanthus) *Ackermanni*; ramis compressissimo-alatis foliiformibus, sinuato-lobatis, floribus maximis coccineis ad crenas ramorum sessilibus, tubo petalis acutissimis ter brevior, antheris stigmatibusque roseis.

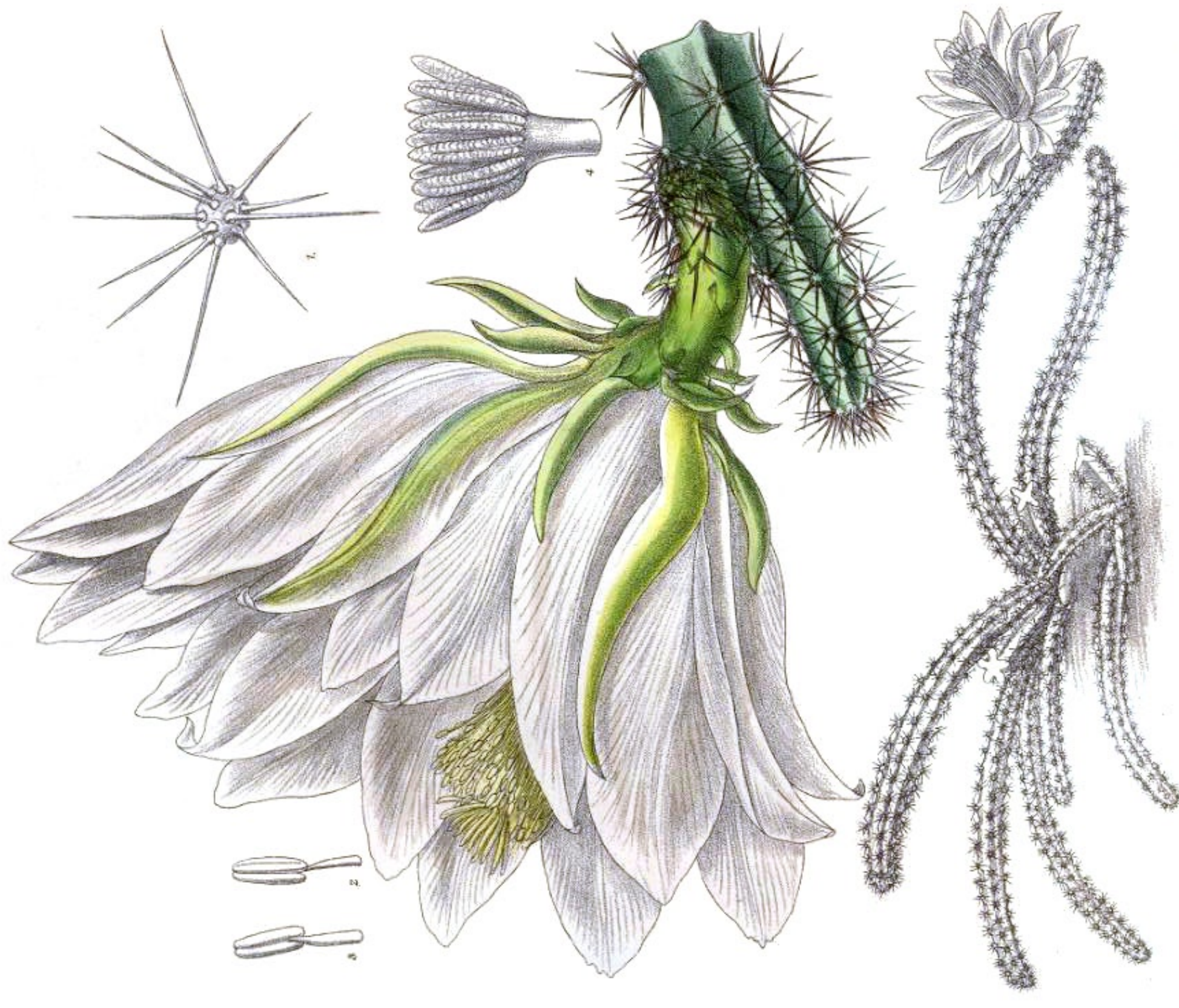
CEREUS *Ackermanni*. *Lindl. Bot. Reg. t.* 1331.

CEREUS *oxypetalus*? *De Cand. Prodr. v.* 3. *p.* 470. *Ejusd. Rev. de la fam. des cact. p.* 60. *t.* 14.

Mr. MURRAY received this truly splendid plant from Mr. HITCHIN, with the remark, that it was raised from seeds which came direct from Mexico: thus confirming the statement of Mr. TATE, with regard to its native country (as given in the Bot. Register) which had been called in question. An opinion seemed to prevail, that it was a seedling hybrid:

hybrid: and, indeed, it is an extraordinary circumstance, that a phyllanthoid Cactus should bear flowers as large, and almost exactly like those of *CEREUS speciosissimus*. I have referred to the present species, though, certainly, not without hesitation, the *CEREUS oxypelatus* of DE CANDOLLE above quoted, and those who will be at the trouble of comparing the two will find many striking points of resemblance; added to which they are both from the same country. Almost the only difference is in the flowers of *C. oxypetalus* being less spreading, “reddish-brown on the outside, and white within.” But when we consider that Professor DE CANDOLLE’s knowledge of the plant is solely derived from a Mexican drawing, we may be allowed to suppose that there probably exists some variation in the plant itself, or that the artist was not a faithful colourist. The sharpness of the petals, especially in the state of the bud, is very remarkable in both. With us it bears its magnificent flowers in June.

DESCR. Stems a foot and a half high, rounded at the base, and marked with little downy prominences, bearing a few short bristles; the *branches* singularly dilated and flattened so as to be two inches to two inches and a half broad, and leaf-like, sinuato-lobed at the margin, destitute of prickles as of fascicles of hairs: in the centre is a *costa* projecting on both sides, and some oblique and broad lateral nerves. From a sinus of these branches, and generally from near the extremity, the *flower-bud* arises, which in a few days enlarges into the splendid blossom here represented. The *tube* is about two inches long, green, tinged with brown, bearing a few ovate, lax, membranous scales, soon passing into *petals*, of which the greater number are about four inches long, oblong, very acute, slightly waved, of a rich scarlet colour and satiny lustre. *Stamens* numerous, declined, shorter than the petals: *Filaments* slender, greenish white at the base, the rest scarlet: *Anther* and *pollen* rose-colour. *Style* longer than the stamens: *Stigma* of seven linear, spreading rays.



View: Blandin, Day & San L. 1909

J. R. & C. P. L. 1909

M. S. 1909

TAB. 8277.

CEREUS AMECAMENSIS.

Mexico.

CACTACEAE.

CEREUS, Haw.; Benth. et Hook. f. Gen. Plant. vol. i. p. 849.

CEREUS amecamensis, Heese ex Rother in Praktischer Ratgeb. vol. xi p. 442, cum ic.; species *C. speciosissimo*, DC. valde affinis, sed caulibus apice pallide viridibus et floribus albis differt

Planta succulenta, basi ramosa, *Rami* elongati, erecti, procumbentes vel penduli, acute 3-5-angulati, 1.5-3 cm. crassi, pallide virides, angulis leviter dentato-sinuatis et pulvinis albo- vel griseo-tomentosis. Spiae 11-15, tenues, aciculares, 7-14 mm. longae, primum albae, demum bruneae. *Flores* magni, 15-17 cm. diam., albi, late iufundibuliformi-campanulati, tubo supra ovarium lperbreve. *Sepala* anguste lanceolata, acuta, interiora 7-8 cm. longa, exteriora multo minora, pallide viridia. *Petala* 2-3-seriata, 9-10 cm. longa, 2.5 cm. lata, lanceolata vel anguste oblongo-lanceolata, obtusa vel subacuta, alba. *Stamina* numerosa, filamentis albis, antheris pallide luteo-albis. *Ovarium* 4 cm. longum, spinosum et squamosum. *Stigmata* 6-10, pallide luteo-alba.—*Cereus amecamensis*, Heese in Hesdorf. Monatsheft. Blum.-Gartenfr. vol. i. p. 317; K. Schum. Monogr. Cact. p. 154.—N. E. Brown

The fine species here figured in general character resembles the well-known and brilliantly coloured *Cereus speciosissimus*, to which our plant is indeed very closely allied. The stems of the two are similar in appearance, though those of *C. speciosissimus* are mostly 3-4-angled, whereas in our plant, while the more erect stems are 3-4-angled, those that grow more or less horizontally are often, at least in part, 5-angled, and the growing shoots do not show the dull purplish tinge at the tips which characterise those of *C. speciosissimus*. In our plant, moreover, the flowers are pure white. *C. amecamensis* is a native of Mexico, where it was discovered by Mr. E. Heese on Iztaccihuatl Mountain, near Amecameca,, growing as an epiphyte in the upper Fir-tree region, at about 7,800 ft. above the level of the sea. For its cultivation *C. amecamensis* requires the treatment suitable for *Phyllocacti*; an abundance of heat and moisture with ample sunshine in summer, and dryness near the root in winter. The large

OCTOBER, 1909.

white flowers are produced in May or June. For the plant from which our figure has been made, Kew is indebted to the generosity of Mr. H. J. Elwes, of Colesborne, who presented it to the establishment in 1900 as an unnamed Cactus from Mexico.

DESCRIPTION.—*Herb.* with succulent stems, branching from the base; branches elongate, erect procumbent or pendulous, sharply 3–5-angled, $\frac{3}{4}$ –1 $\frac{1}{4}$ in. thick, pale green, the angles slightly sinuately toothed and with white- or grey-tomentose swellings. *Spines* in clusters of 11–15, slender, needle-like, 4–7 lin. long, at first, white, at length brownish. *Flowers* large, white, 6–7 in. across, widely campanulately funnel-shaped, the tube above the ovary very short. *Sepals* narrow lanceolate, acute, the inner about 3 in. long, the outer much shorter, pale green. *Petals* 2–3-seriate, about 4 in. long, 1 in. wide, lanceolate or narrowly oblong-lanceolate, obtuse or subacute, pure white. *Stamen* numerous; filaments white, anthers pale yellowish white. *Ovary* 1 $\frac{1}{2}$ in. long, beset with spines and scales; stigmas 6–10, pale yellowish white.

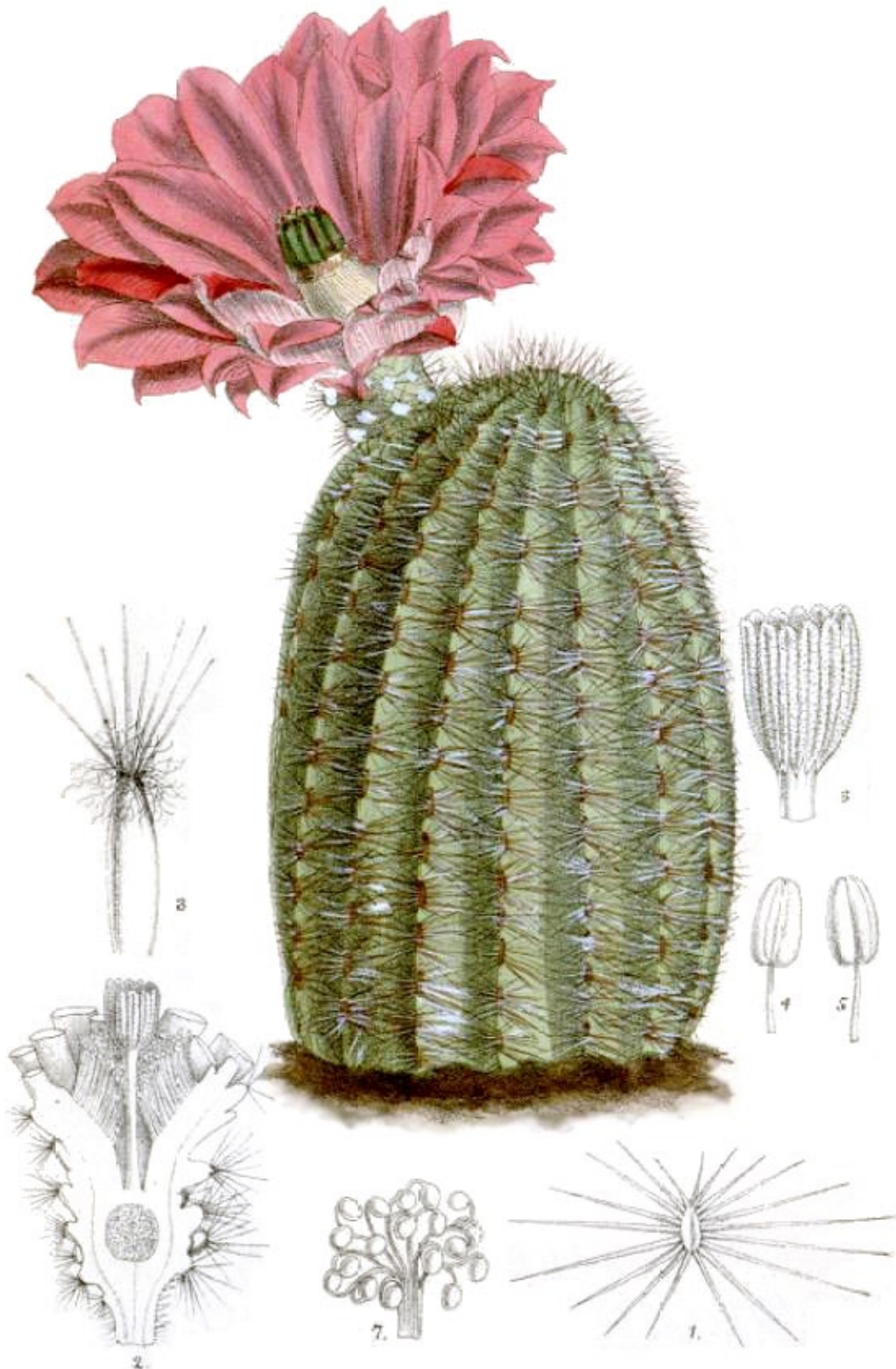
Fig. 1, a group of spines; 2 and 3, authors from in front and from behind; 4, stigmas; 5, sketch of entire plant, showing habit:—1–4 *enlarged*, 5 *much reduced*.

TAB. 6669.

CEREUS CÆSPITOSUS.

Native of New Mexiko and Texas.

Nat. Ord. CACTEÆ.—Tribe ECHINOCACTEÆ.

Genus CEREUS *Haworth; (Benth. et Hook. f. Gen. Pl. vol. i. p. 849.)*

CEREUS (*Echinocereus*.) *cæspitosus*; caulibus ovoideis v. ovoideo-cylindræis solitariis v. *cæspitosis* 12–18-costatis, areolis elevatis linearibus approximatis junioribus albo-villosis, aculeis radialibus 20–30 subrecurvis appressis pectinatis albis nonnunquam roseis superioribus inferioribusque brevioribus lateralibus longioribus centralibus 0 v. paucis, tubo floris pulvillis 80–100 longe cinereo-villosis setas apice seu totas fuscas seu nigricantes 6–16 gerentibus stipato, sepalis interioribus 18–25 oblanceolatis integris seu denticulatis, petalis 30–40 obovato-lanceolatis obtusis acutis seu mucronatis ciliato-denticulatis, stigmate, viridi infundibulari 13–18-partito, bacca viridi ovata perigonio coronata villosa setosa denum denudata, seminibus obovatis tuberculatis nigris.—*Engelm.*

C. cæspitosus, *Engelm. in Plant. Lindheim.* 202; *et in Cact. U.S. Mex. Bound. Surv.* 32, t. 43, 44; *Walp. Ann.* vol. v. p. 43.

ECHINOCEERUS cæspitosus, *Engelm. in Bot. Wislitz. Exped.* 26; *Walp. Ann.* vol. iii. p. 896.

E. pectinatus, *Hort.*

Dr. Engelmann, of St. Louis, the learned and most accurate investigator of the *Cacti* (as of many other groups of American plants), says of this species, that it extends from the Arkansas river to Saltillo, and has been found as far west as the Nueces and San Pedro, and adds that the loose darkish wool and slender bristles on the extremely numerous (eighty to one hundred) pulvilli of the flower-tube, and especially the position of these pulvilli—not in the axil, but considerably above it on the sepal, just below its foliaceous tip,—distinguish this species from the nearly allied *E. pectinatus*, and from all other *Echinocerei* known to him. And with regard to the name, *cæspitosus*, which would apply much better to a number of other species of the section *Echinocereus*, it was given before any of these were known; it not inaptly represents a common state of the plant, when it wakes five to twelve heads, but not

JANUARY 1ST, 1883.

rarely it is almost or quite simple. As a species this is very near and usually confounded with *E. pectinatus*, a Mexican plant (under which name it came to Kew). *E. pectinatus* has more (about twenty-three) ribs, sixteen to twenty subrecurved prickles, of which two to five are central, sixty to seventy pulvilli on the tube, and fewer (sixteen to eighteen) oblong petals.

Dr. Engelmann enumerates three varieties of *E. pectinatus*,— α , *minor*, with shorter more slender not interlaced spines and smaller flowers; β , *major*, with longer stronger interlaced spines and larger flowers; and γ , *castanea*, with red or chestnut-brown spines.

This plant was given to the Royal Gardens by Mr. Croucher, formerly foreman of the propagating department at Kew, and subsequently gardener to Mr. Peacock at Hammersmith, and now in the United Suites of America.

DESCR. *Stems* four to six inches high by three to four in diameter, simple or clustered, cylindric-ovoid, pale greyish or whitish with scanty brown wool. *Ribs* twelve to eighteen, low, one-half to three-quarters of an inch broad at the base. *Pulvilli* close-set, a quarter of an inch apart or more, with twenty to thirty pectinately arranged straight spines a quarter of an inch long or more, mixed with wool; spines white or rosy, appressed to the stem, the lateral much the longest, central none or very few and short. *Tube of the flowers* with eighty to one hundred pulvilli clothed with long ashy wool, and bearing six to sixteen brown or blackish spines. *Inner sepals* eighteen to twenty-five, oblanceolate, entire or toothed. *Petals* thirty to forty, deep rose-coloured, oblong, acute, obtuse or mucronate. *Stigma* funnel-shaped, green, with twelve to eighteen rays. *Berry* green, ovoid. *Seeds* obovate, tubercled, black.—*J. D. H.*

Fig. 1, Group of spines; 2, vertical section of calyx and ovary; 3, pulvillus of tube; 4 and 5, anthers; 6, stigma, 7, ovules:—*all enlarged*.



Pub. by A. Curtis Glazenwood Essex Feb. 1844

W. Fisch del.

(4066)

CÉREUS EXTÉNSUS. LONG-STEMMED CEREUS:
or Torch-Thistle.

Class and order.

ICOSANDRIA MONOGYNA.

(Nat. Ord.—CACTEÆ)

Generic Character.

Sepala numerosissima imbricata, basi ovario adnata, in tubum elongatum concreta, exteriora breviora calycinaria, media longiora colorata, intima petaliformia. *Stamina* numerosissima cum tubo concreta. *Stylus* tiliforniis, apice multifidus. *Bacca* areolata, sepalorum reliquis squamata aut tuberculosa. *Cotyledones* acuminatae.—Frutices *carnosi, subglobosi vel elongati, stricti, articulati vel repentes, axi ligneo interne medullifero donati, angulis verticalibus, spinarum fasciculos gerentibus vel inermibus regulariter sulcati*. Anguli seu alae nunc plurimae nunc paucissimae, rarius duae tantum, et tunc rami compresso-alati inermes. Flores ampli e spinarum fasciculis lateralibus trunci aut ramorum vetustiorum, aut crenis angulorum orti. Fructus oviformes, plerumque anno sequente maturescentes, edules. Pfeiff.

Specific Character and Synonyms.

CEREUS *extensus*; longissime articulatus radicans viridis 3-angularis, angulis repandis obtusis, areolis remotis nudiusculis, aculeis brevissimis rectiusculis 2—3, setis paucis deciduis, flore magno, tubo cylindraceo squamato, squamis magnis coloratis sensim in sepala et petala transeuntibus.

CEREUS *extensus*. Salm Dyck in De Cand. Prodr. 3. p. 469. "Wendland in Otto's G. Z. 1836. n. 39. S. 306." Pfeiff. Enum. cact. p. 119.

CEREUS *squamatus*. Pfeiff. (in Otto's G. Z. n. 48. S. 30.) ?

This

This has been long cultivated in the Royal Botanic Gardens of Kew, but had never flowered there, nor was its native country known to any one, till, in August, 1843, my friend, J. GRAY, Esq., of Greenock, sent me the splendid specimen here represented, taken from a plant he had received from Trinidad; thus, at the same time, establishing its native country, and giving the opportunity of making so fine a blossom known to the Botanical world by a good figure. How needful such figures are, is but too apparent from the confusion of synonyms, in cases where we have only recourse left to descriptions. Professor DE CANDOLLE, who takes up this species from the Prince DE SALM DYCK'S letter, doubts if it be not a variety of his previous species, "*C. coccineus* (SALM DYCK in litt.):" but the "*C. coccineus* DE GAND.," strange to say, is nevertheless by PFEIFFER made a var. of the *setaceus* (SALM DYCK); while the *C. coccineus* (SALM DYCK) is placed in a different division, and retained as a quite distinct species by PFEIFFER. This seems to be a very shy flowering species; and if we consider the size and colour of the blossoms, one of the handsomest of this remarkable Genus.

DESCR. A repent, and, probably, a climbing species, branched, with very long joints, slender in proportion to their length, about three-fourths of an inch wide, triangular, rooting, with the angles obtuse repando-sinuate, the sides plane, the *areolæ* on the obtuse angles small, woolly, and often setose; but the wool and setæ are deciduous. Two to three, and, occasionally, four, very short and stout dark-brown *aculei* are implanted in the areolæ, scarcely more than two-thirds of a line long. *Flowers*, very large, handsome. *Tube* green, moderately long, cylindrical, swollen below, beset with rather distant *scales*, which are large, triangular or ovate, greenish-yellow, tipped, and margined with red, then gradually become larger upwards and longer, insensibly passing into the sepals, and then again almost as insensibly become the oblongo-obovate, acute, rose-coloured *petals*. *Stamens* very numerous, the lowermost ones the longest. *Anthers* sulphur-yellow. *Style* very thick, columnar, longer than the stamens. *Stigma* with about fourteen subulate, spirally-twisted, papillose rays.

TAB. 6533.

CEREUS FENDLERI.

Native of New Mexico.

Nat. Ord. CACTEÆ.—Tribe ECHINOCACTEÆ.

Genus CEREUS, *Haworth*; (*Benth. et Hook. f. Gen. Pl. vol. i. p. 849.*)

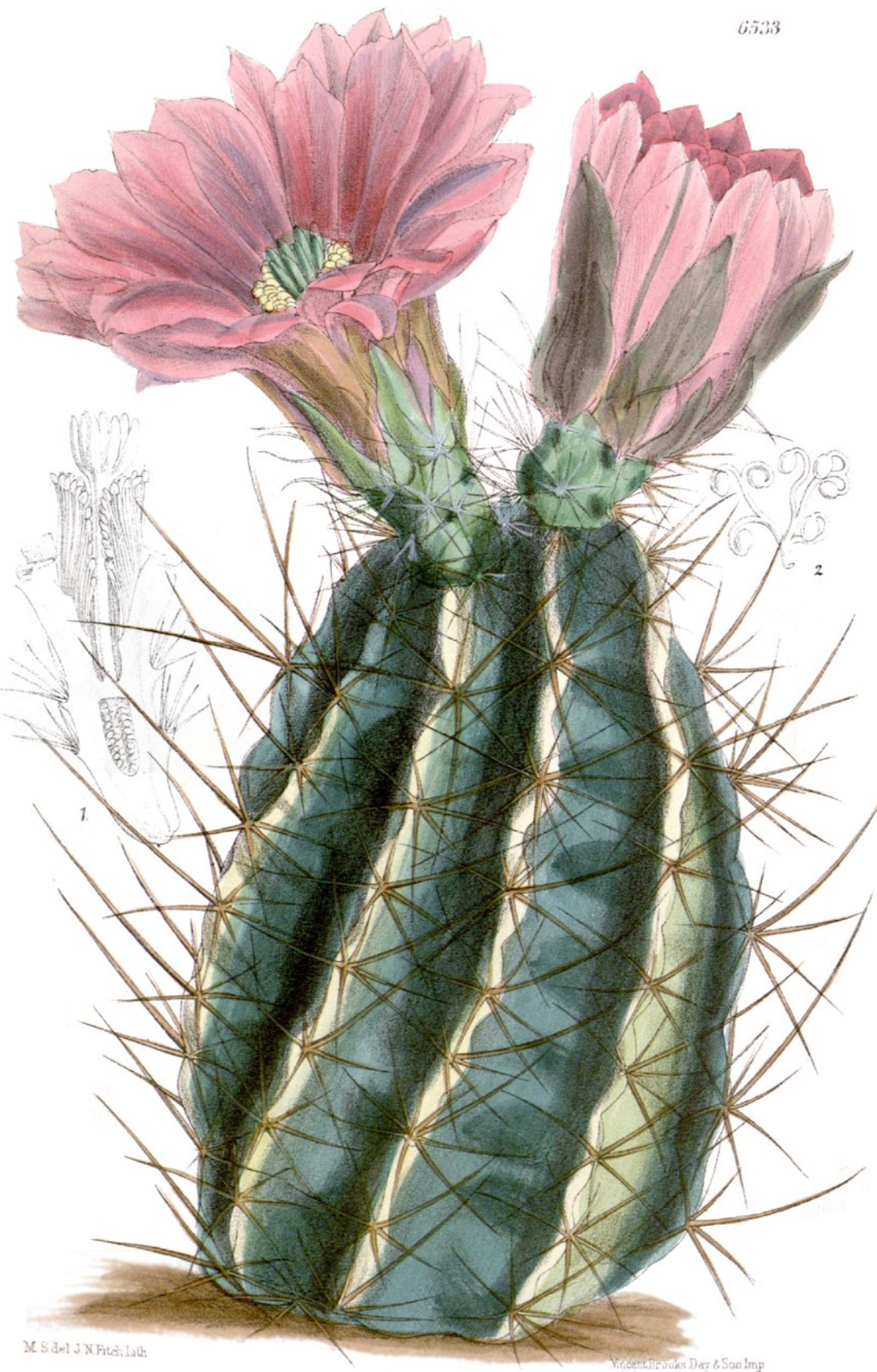
CEREUS (Echinocereus) *Fendleri*; simplex v. parce e basi ramosus, ovoideus v. subcylindraceus, costis 9–12 tuberculato-interruptis, areolis orbiculatis junioribus tomentosis, aculeis basi bulbosis, radialibus 7–10 rectis curvisve, inferioribus robustioribus, infimo 4-gono albido, sequentibus 2 obscuris ceteris albis v. fuscovariegatis, superioribus tenuioribus pallidis, summo elongato robusto incurvo v. deficiente, aculeo centrali valde bulboso teretiusculo elongato rarissime 0, floribus magnis purpureis subverticalibus, ovarii tubique pulvillis 25–35 aculeolos 3–12 albos sæpe adustos gerentibus, sepalis interioribus 12–15 linearilanceolatis v. spathulatis acutis, petalis 10–24 lineari-oblongis v. ovatospathulatis, stigmatibus 12–16 erectis viridibus stamina numerosissima vix superantibus, bacca ovoideo-globosa pulvillis aculeolatis stipata, seminibus oblique obovatis scrobiculatis, embryo paulo curvo.

C. *Fendleri*, *Engelm. Cactaceæ of Emory's U. S. and Mexican Boundary Survey*, 34, tab. 52, 53.

This fine *Cereus* is a native of the great Cactus region of the United States, where, according to its author, Dr. Engelmann, it inhabits rocks in alluvial river-bottoms from Santa Fe to the Cañon of the Rio Grande below El Paso, and from fifty miles east of the Upper Peros westward to Zuni, and the Aztec mountains and the Copper mines. It is admirably described and figured along with twenty-eight other *Cactææ* from the same region in the work of Dr. Engelmann quoted above, whose characters I have nearly verbatim reproduced, finding that though drawn up (presumably) for dried specimens, they perfectly accord with those of the cultivated one here figured.

Our specimens were presented to the Royal Gardens along with a very choice set of other *Cactææ* from the same regions by Edmund Giles Loder, Esq., of Howe, Floore, a gentleman who possesses a rich collection of rare succulent and other plants. It flowered soon after it was received in June of this year.

DECEMBER 1ST, 1880.



DESCR. *Stem* ovoid or subcylindric, five to seven inches high, and three to four inches in diameter, pale green, simple, rarely branched at the base. *Ribs* nine to twelve, erect or slightly twisted, half an inch deep, obtuse, interruptedly tubercled. *Areoles* at base of the spines orbicular, tomentose when young. *Spines* bulbous at the base, the radial seven to ten, straight or curved, the lower stronger, the lowest four-angled white; the rest whitish or variegated with brown, the upper more slender and pale, the uppermost long curved or wanting; the central one to one and a half inches long, bulbous at the base, brown, terete or wanting. *Flowers* large, purple, suberect, three inches in diameter. *Calyx-tube* short, together with the ovary, one-half to one inch long, both bearing cushions covered with twenty-five to thirty-five short spines with sometimes a few brown ones intermixed. *Inner sepals* twelve to fifteen, linear-lanceolate or spatulate, acute or cuspidate. *Petals*, sixteen to twenty-four, linear-oblong or obovate-spatulate, acute or obtuse, close. *Stigmas* twelve to sixteen, large, green, rather larger than the stamens. *Berry* ovoid-globose, purplish, edible, with eighteen to twenty spinous cushions. *Seeds* obliquely obovoid, tubercled; embryo slightly curved. —*J. D. H.*

Fig. 1, Vertical section of base of perianth and ovary, *of the natural size*; 2, ovules. *enlarged*.



TAB. 5856.

CEREUS FULGIDUS.

Glittering-flowered Cereus.

Nat. Ord. CACTAEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. (*Vide supra* TAB. 5360.)

CEREUS *fulgidus*; caule elongato gracili ramoso, internodiis elongatis 1-poll. diam. profunde 3-4 gonis, angulis compressis margino obtusis fasciculato-spinosis, spinis ad 10 parvis gracilibus, areolis tomentosis, floribus 6-8 poll. diam., calycis tubo 3-4-pollicari cylindrico hirsuto bractceolis parvis ovato-lanceolatis incurvis rubris obsito, foliolis calycinis 3-4-seriatis lanceolatis recurvis acuminatis pallide coccineis externis angustioribus, corollinis 2-3-seriatis obovato-oblongis suberectis apiculatis sanguineis fulgidis, staminibus petalis brevioribus, stylo ataminibus longiore, stigmatibus ad 15 subulatis radiantibus.

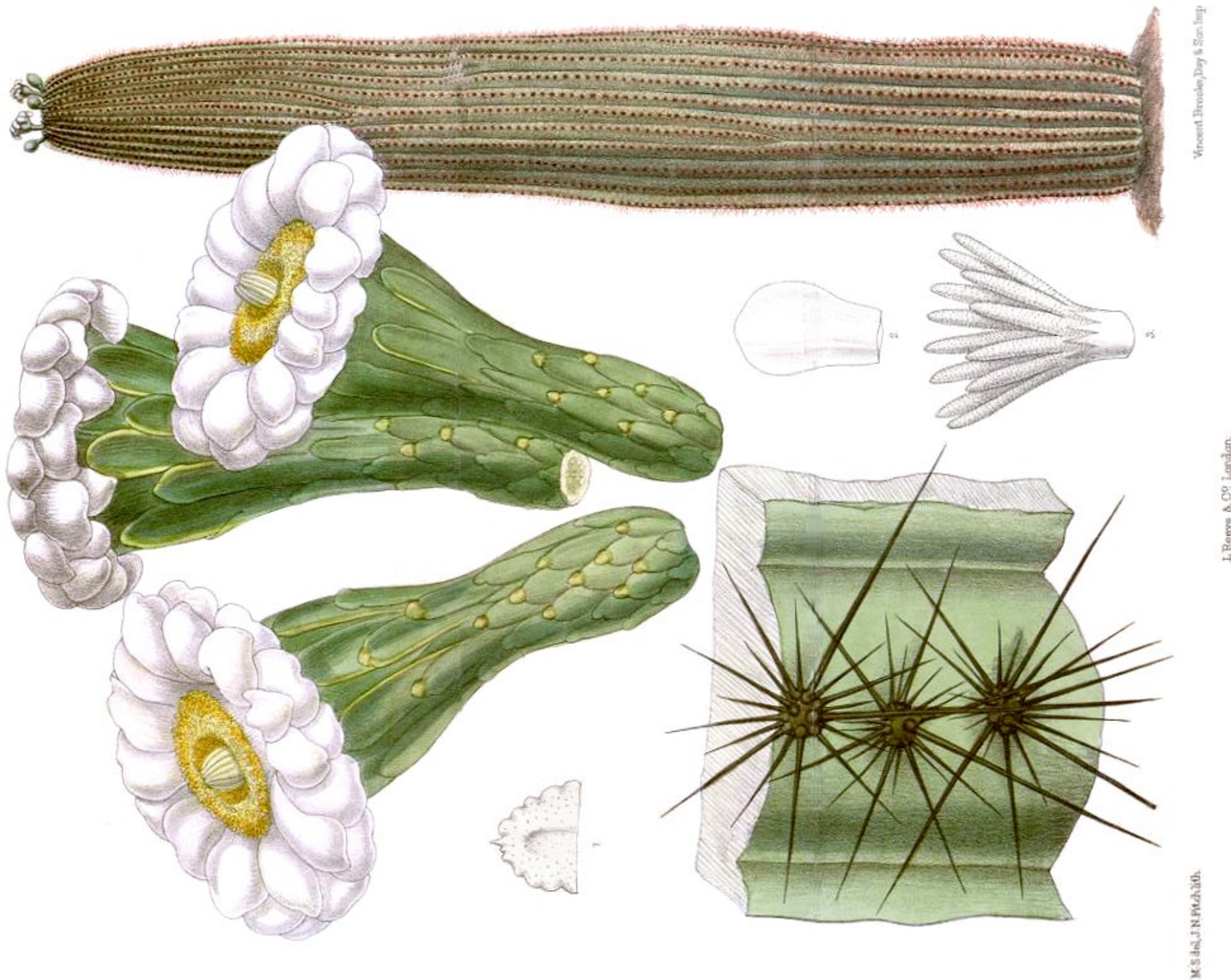
I regret to have to state that the history of the plant here figured is quite unknown to me. It has been cultivated in the Royal Garden for a good many years, flowering annually, and has been seen by various collectors, none of whom have recognised it. In many of its characters it resembles the *C. Pitajaya*, Jacq., of Brazil, which is merged with some eight or ten garden and other species into one called *C. viribilis* by Pfeiffer, and I should not be at all surprised if it proved to be a hybrid between that plant, which is white-flowered, and some scarlet-flowered *Cactus*; though it differs from *C. viribilis* in the laxer habit, and flowering only in the evening and night. The habit indeed is that of *C. speciosissimus*. It flowers in July, the flower opening in the early evening and remaining expanded till the following noon.

DESCR. Stems pale bright green, not glaucous, 2 to 3 feet high, 3- to 4-angled, one inch and a half diameter, angles much compressed, starting from near the axis, so that on a transverse section the wings or angles appear as narrow

SEPTEMBER 1ST, 1870.

arms about one-eighth of an inch thick; margin obtuse, notched at intervals of one to one inch and a half; areolæ at the notches small, with yellow tomentum; spines about half an inch to three-quarters long, slender, straw-coloured, tipped with brown, about three of them central. *Flowers* situated at the notches, six to seven inches diameter. *Calyx-tube* three to four inches long, three-quarters of an inch in diameter in the middle, laxly pilose with long soft hairs, obscurely ribbed, clothed with scattered ovate-lanceolate acuminate incurved bracteoles one-third of an inch long. *Outer (calycine) perianth* segments, in about three to four series, ovate-lanceolate, acuminate, recurved, pale scarlet, outermost narrow, inner passing into the corolline segments, which are in two to three series, suberect, oblong-ovate, acute, blood-red, glossy with a metallic lustre. *Stamens* very numerous, shorter than the petals. *Style* longer than the stamens, very stout; stigma with about fifteen subulate rays. *Ovary* ovoid, scarcely broader than the calyx tube.—*J. D. H.*

Fig. 1, Notch of stem, with spines; 2, top of style and stigma:—*both magnified.*



Vincent Brooks, Day & Son. Imp.

L. Reeve & Co. London.

M. S. del., J. N. P. del.

TAB. 7222.

CEREUS GIGANTEUS.

Native of Southern California.

NAT. Ord. CACTEÆ.—Tribe ECHINOCACTANEÆ.

Genus CEREUS, *Haw.*; (*Benth. & Hook. f. Gen. Pl.* vol. i. p. 849.)

CEREUS (*Lepidocereus*) *giganteus*; erectus, cylindricus, simplex v. parce ramosus et candelabriformis, basin et apicem versus attenuatus, ramis paucis erectis, vertice applanato tomentosus, costis infra sub 13 sursum 18–21 rectis acutatis, sinubus acutis, areolis prominulis ovato-orbiculatis junioribus albido-tomentosis, aculeis rectis basi bulbosis tenuiter sulcatis, radialibus 10–16, inferioribus brevioribus, summis 4–5 cæteris multoties longioribus validis, floribus apicem versus caulis aggregatis, ovario ovoideo, sepalis oblongo-ovatis obtusis irnbricatis nudis v. parce aculeatis tecto, calycis tubo mediocri, sepalis lineari-oblongis obtusitis arcte imbricatis inferioribus in axillis lanigeris, intimis 10–15 apicibus undulatis spathulatis, petalis 25–35 obovato-spathulatis convexis recurvis albis, staminibus numerosissimis, antheris dense congestis, stylo incluso, stigmatibus 12–18 linearibus obtusis, bacca obovidea v. pyriformi, pericarpio demum 3–4-valvi, pulpa coccinea, seminibus numeroisissimis oblique obovoideis lucidis exalbuminosis, cotyledonibus foliaceis tramatis.

C. giganteus. *Engelm. Cact. of Emory Rep.* p. 22 (1848); *in Am. Journ. Sc. & Arts, Ser. ii.* vol. xiv. (1842) p. 335; *Synops. of Cactæ of U. States in Proc. Am. Acad. Arts & Sc.* vol. iii. (1856) p. 287; *in Rep. of Whipple's Railroad Surv.* vol. iv. (1856) p. 36; *in Rep. of Emory Mex. Boundary Survey*, vol. ii pt. i (1859) p. 42, t. LXI., LXII., *et Tab. Front. Trlease & A. Gray. Bot. Works of G. Engelm.* pp. 113, 122, 125, 140, 161. 202, t. LXI. LXII.; *Bot. Zeit.* 1854, p. 616.

The flowering of this wonderful plant in England must be considered one of the triumphs of Horticulture. It has been long known to science, very imperfectly at first, from accounts brought by W. H. Emory of a gigantic Cactus which he saw in 1847 during his military reconnaissance from the Missouri River to San Diego in California, and who figured it in several plates that accompany his Report (pp. 72—79). From seeds brought by Mr. Emory to Dr. Engelman, of St. Louis, that botanist pronounced it to be probably a species of *Cereus*, but it was not till Dr. Parry accompanied a second expedition to the same regions, in 1852, that the plant was scientifically known. From Dr. Parry's notes Dr. Engelman was enabled to describe the

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species botanically in the American Journal of Science and Arts (November, 1852), when he named it *C. giganteus*. In that account he observes that "it is no doubt the same plant of which Humboldt makes mention in his work on New Spain (vol. ii. p. 225), where he says that the Spanish missionaries found at the foot of the Californian mountains nothing but sand or rocks, on which grew a cylindrical Cactus (Organos del Tunal) of extraordinary height." In a subsequent account of the plant in the Report of Whipple's Expedition on a route along the thirty-fifth parallel, at p. 37, doubts are expressed as to the probability of Engelman's surmise being tenable, on the ground of Humboldt having given no other characters for his "Organos del Tunal" beyond its size and edible fruit; but surely if it be granted, as it must be, that *C. giganteus* is the tallest of all *Cacti*, and bears an edible fruit, it is natural to suppose that it is that referred to by Humboldt's informants, and that to this illustrious traveller we owe the first allusion to its existence.

C. giganteus inhabits the dreariest and most torrid deserts of the American continent, in Southern California and Arizona, from the William's and Gila rivers to Sonora, Lat. 35° to 28° N. There trees of it are described as "giving the landscape a very peculiar appearance. As far as the eye can reach, in the valleys or on the mountains, little else but rocky boulders, and the stately yet awfully sombre aspect of this *Cereus* can be seen." Individual plants are said to attain a height of sixty feet, with scarcely a branch, and nearly two in diameter, and as if to add to their uncomeliness the thick fleshy substance of the upper part frequently rots away, exposing a woody interior framework, which breaks up into a crown of brush-like fragments that wave about in the wind. Young plants are globose and very slow of growth, they are found only under the shade of the "Green bark Acacia," *Cerridium floridannum*, a starved bushy tree that is scattered over the desert. Dr. Engelman mentions having one such infant *Cereus* of this species which he believed to be eight or ten years old, but which was only five or six inches in diameter.

The flowers, which are produced when the plant attains

a height of ten or twelve foot, appear from May to July, and are succeeded by pear-shaped fruits three inches long, which burst open by three or four valves, exposing a bright red pulpy edible core full of seeds; this core falls to the ground, the valves being retained on the tree and reflexed, when they resemble the petals of a scarlet flower. The pulp is sweet, somewhat resembling a fig, and is greedily eaten by the Indians, both raw and made into a kind of molasses and conserve. The flesh of the plant itself is bitter, in this respect differing from that of most *Cacti*, of which the flesh is acidulous. The Indian name of the plant is Suwarrow or Saguara, and the Mexican Pitajaya.

For the above information I am indebted to the notes and observations of Drs. Engelman and Parry, scattered through the various Reports and papers cited above.

The stem of the Kew plant is fourteen feet high and four and a half in girth, at the thickest part; on its arrival it weighed twelve hundred weight and had no roots. It was purchased from Messrs. A. Blane and Co., Nurserymen, of Philadelphia, who own a piece of land in Mexico where this species grow. On arrival in 1890 it was potted and placed in the south end of the Palm house, where it, flowered in July, 1891.—*J. D. H.*

Fig. 1, Apex of lower sepal; 2, inner sepal; 3, stigmas:—all enlarged.



(3381)

CEREUS GRANDIFLORUS. LARGE-FLOWERED,
or NIGHT-BLOWING CEREUS.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

Sepala numerosissima imbricata basi ovario adnata, in tubum elongatum concreta, exteriora breviora calycinalia, media longiora colorata, intima petaliformia. *Stamina* numerosissima cum tubo concreta. *Stylus* filiformis apice multifidus. *Bacca* sepalorum reliquiis areolata tuberculosa aut squamata. *Cotyledones* nullæ?—*Frutices carnosi elongati axi ligneo internè medullifero donati, angulis verticalibus spinarum fasciculos gerentibus regulariter sulcati.* An -guli seu alæ nunc plurimæ, nunc paucissimæ, rarius dua tantum et tunc rami compresso-alati. Flores ampli è spinarum fasciculis aut crenis angulorum orti. D C.

Specific Character and Synonyms.

- CEREUS *grandiflorus*; radicans diffusus scandens 5—6-angularis, setis 5—6 brevibus vix tomento longioribus. D C.
- CEREUS *grandiflorus*. Mill. Dict, Haw. Syn. Succ. Pl. p. 184. De Cand. Prodr. v. 3. p. 4(8).
- CACTUS *granditlorus*. Linn. Sp. Pl. p. 688. De Cand. Pl. Grasses, t. 52. Spreng. Syst. Veg. v. 2. p. 496.
- CEREUS *gracilis* scandens, &c. Trew, Ehrh. t. 31. 22.

The Cactus-family though possessing stems of the rudest and most grotesque forms is surpassed by none in the beauty of its blossoms. While the CEREUS *speciosissimus*, as its name would lead us to expect, produces flowers of a remarkably large size, and possessing very brilliant colours, the

the subject of our present figure yields to no plant in the size, delicacy, and fragrance of its blossoms: nor are these its only peculiarities; it has been aptly described as

“Queen of the dark, whose tender glories fade
In the gay radiance of the noon-tide hours.”

“That flower, supreme in loveliness, and pure
As the pale Cynthia’s beams, through which unveiled
It blooms, as if unwilling to endure
The gaze, by which such beauties are assailed.”

In our stoves the season of blossoming is usually the month of August. At ten or eleven at night the flowers are fully unfolded, and by day-light, they are closed never more to expand. The closing of the flower may be retarded as Mr. MURRAY has ascertained, even for a whole day by removing the bud before it is fully open, and putting the cut end into wet sand. Our drawing was made from a plant which had three flowers in perfection at the same hour. The species is a native of the West India Islands, and as, according to Hortus Kewensis, cultivated before 1700, in the Royal Gardens at Hampton Court. The present and all the more beautiful and showy species and varieties of CACTUS, are no where perhaps more successfully cultivated than at the extensive gardens and nursery grounds of Mr. CURTIS at Glazenwood, Essex; where the curious and grotesque forms of the stem form a singular contrast with the splendour of the blossoms.

DESCR. Stems Creeping and extending to a great length, branched, with from five to seven angles, the angles bearing numerous, small tufts of a woolly substance, intermixed with six to eight short setæ. Copious, radicles are thrown out from various parts of the stem, even when the latter does not come in contact with the soil. There is no trace of leaves of any kind. The *flowers* are lateral. The *bud* is at first globose, acute, then clavate, sessile, covered with imbricated scales, bearing long setæ. When fully expanded, the flower is a span across: the *tube* of the *calyx* long, green. the *limb* cup-shaped: the former is composed of thin united, imbricated scales, above mentioned: the latter is formed of the numerous long, spreading, tawny-orange, upper segments of the calyx, forming a sort of ray, and of an inner series of calyx-segments or petals, which are oblong, broader upwards, nearly erect, and of a pure white colour. *Stamens* numerous, long, at length inclined to one side: *Filaments* white: *Anthers* linear-oblong, yellow. Style as long as the stamens: Stigma of many rays.



(3813)

CÉREUS LÁTIFRONS. BROAD-STEMMED
CEREUS.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—Cactææ.)

Generic Character.

Sepala numerosissima imbricata, basi ovario adnata, in tubum elongatum concreta, exteriora breviora calycinaria, media longiora colorata, intima petaliformia. *Stamina* numerosissima cum tubo concreta. *Stylus* filiformis, apice multifidus. *Bacca* areolata, sepalorum reliquiis squamata aut tuberculosa. *Cotyledones* acuminatæ.—Frutices *carnosi, sub globosi vel elongati, stricti, articulati vel repentes, axi ligneo interne medullifero donati, angulis verticalibus, spinarum fasciculos gerentibus vel inermibus, irregulariter sulcati*. Anguli seu alæ plurimæ, nunc paucissimæ, rarius duæ tantum et tunc rami compresso-alati inermes. Flores ampli e spinarum fasciculis lateralibus trunci aut ramorum vetustiorum, aut crenis angulorum orti. Fructus ovi-formes, plerumque anno sequente maturescentes, edules. *Pfeiffer*.

Specific Character and Synonyms.

CEREUS *latifrons*; ramis maximis planis foliaceis viridibus apice obtusis, marginibus repando-dentatis, dentibus truncatis. *Pfeiff*.

CEREUS *latifrons*. "Zucc. in Act. Acad. Bavar. 1837. 2. p. 735. *Pfeiffer*, Enum. Cact. p. 125. *Pfeiff. et Otto*, Cactées, tab. 13. f. 2.

CEREUS *oxypetalus*. *De Cand. Revue*, tab. 14.

EPIPHYLLUM *latifrons*. *Zucc. in Cat. Hort. Monac.* 1836.

From the collection of the Messrs. MACKIE of Norwich, by whom I am favoured with the drawing, from which the annexed

annexed engraving is made. This species was, I believe, one of Mr. HITCHIN's collection, who received it from the continent under the name of *EPIPHYLLUM oxypetalum*, (*CEREUS oxypetalus*, *D C.*) which Dr. PFEIFFER, it appears, justly considers the same as the *C. latifrons* of ZUCCARINI, a much more appropriate name it must be confessed. It is certainly very nearly allied to our *C. phyllanthus* (Bot. Mag. t. 2692, the *C. phyllanthus*. var. *flore majore* of DE CAND., *C. Hookeri*, HAW., and of PFEIFFER and OTTO, *Cactées*, tab. 5.) These latter authors say, that it differs from *C. Hookeri* "par la crénelure de ces rameaux et par la forme de sa fleur:" but these distinctions are not very evident, even in their own figures. It flowers in August.

DESCR. A tall-growing plant, incapable of supporting itself, jointed and proliferously branched; the branches and joints elongated, very broad and compressed, with an elevated nerve or costa in the middle, and which sends out a branch where a flower arises, the margin crenulated, sometimes tinged with purple. From a crenature of the margin the *flower* arises, which is peculiarly large, solitary, and handsome. *Tube* very long and slender, tinged with purple, and beset with purple or reddish *scales*, which gradually pass into the *calycine segments*, and these almost imperceptibly into *petals*: the latter are pure white, lanceolate, acuminate. *Stamens* long, numerous, yellowish-white. *Style* red, longer than the stamens. *Stigma* of many yellow rays.

CEREUS LEEANUS.

Mr. Lee's Cereus

Nat. Ord. CACTEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. *Sepala* numerosissima imbricata, basi ovario adnata, in tubum elongatum concreta, exteriora breviora calycinalia, media longiora colorata, intima petaliformia. *Stamina* numerosissima cum tubo concreta. *Stylus* filiformis, apice multifidus. *Bacca* areolata sepalorum reliquiis squamata aut tuberculosa. *Cotyledones* acuminatæ.—Frutices carnosi, subglobosi, v. elongati, stricti, articulati v. repentes, axi ligneo iterne medullifero donati, angulis verticalibus spinarum fasciculos gerentibus vel inermibus, regulariter sulcati. Anguli seu alæ nunc paucissimæ, rarius duæ tantum, et tunc rami compresso-alati inermes. Flores ampli, e spinarum fasciculis lateralibus trunci aut ramorum vetustiorum, aut crenis angulorum orti. Fructus oviformes, plerumque anno sequente maturescentes, edules. Pfeiff.

CEREUS leeanus; erectus subpedalis conico-cylindraceus subacute 12–14-costatus, areolis approximatis pulvinato-tomentosis sub-12-spinosis, spins v. aculeis acicularibus valde inæqualibus strictis fuscis, exterioribus 2–3 lineas longis, centrali unciali, floribus subterminalibus speciosis lateritio-sanguineis, squamis calycinis apice viridibus setosis, petalis obovato-oblongis acutis.

Presented to the Royal Gardens by Mr. Lee of the Hammer-smith Nursery, who received it from France, as an unknown species, native of Mexico. If published, it would be no easy matter to recognise it from description alone. It is only by good figures, taken from perfect flowering specimens of the living plants that we can hope to make known the distinguishing feature of the individuals of this singular family. The present species is among the most beautiful, a free bloomer, and its blossoms are large and showy.

DESCR. Our *plant* is nearly a foot in height, about four inches broad, tapering upwards, from a nearly cylindrical base, hence somewhat conical, the summit being the narrowest part: it is furrowed throughout its length rather deeply and acutely, forming elevated, rather sharp ridges or angles, which are studded at short intervals by small, dense, cushion-like tufts of wool, bearing the cluster (about twelve in a cluster) of sharp needle.



shaped *aculei*, straight, very irregular in length, the outer series being the shortest, and gradually lengthening, till the central, longer and shorter than the rest, is about an inch long. At and near the summit, four or five large, handsome, brick-red (inclining to blood-coloured) *flowers* are produced. The tube (constituting the *calyx*) is green at the base, then yellowish orange, clothed with oblong fleshy scales (*sepals*), acute, tipped with green, and bearing at the point a tuft of aciculi or bristles. These scales pass rather suddenly into *petals* of an oblong-obovate-acute form, spreading and imbricated. *Stamens* numerous, rather longer than the tube. *Style* columnar. *Stigma* green, of many erect or connivent rays. *W.J.H.*

CULT. The general practice with cultivators of *Cactææ* is to grow them in poor soil, composed of light loam, mixed with siftings of lime-rubbish, and some sharp sand, giving them but little water, and keeping them in a moderately warm and dry atmosphere; during the winter, this treatment being in imitation of the natural climates of the plants, may be considered in a general view to be correct; but other elements peculiar to climate are wanting, before we can be said to place the *Cactææ*, or any other exotics, under the same influences by which they are supported in their native localities. It is quite true that we are able to produce an artificial climate, so far as temperature and the hygrometric state of the atmosphere are concerned; but there are influences derived from the proximity of the sea, of certain geological formations, and of the greater or less elevation of extensive plains in connection with particular latitudes, which, with all our contrivance and appliances, we are unable to obtain to any extent.. As *cactææ* inhabit many climates, growing in the hottest and most exposed arid places within the tropics, and ranging within 40 to 50 degrees of latitude on either side of the equator, it is impossible to lay down any other rule for their cultivation in our gardens than an approximate one.

The modifications of this rule relate principally to temperature. The *Cereus Leeanus*, being a native of the north of Mexico, needs only to be protected during the winter from severe frosts: it has been known to bear several degrees of frost without injury. As spring advances it should receive some artificial heat and moisture, in order to get it into early growth, by which to ensure its flowering. Towards autumn it will be benefited by full exposure to the sun with plenty of free air, gradually decreasing the supply of water as the winter approaches.

In respect to the soil, we have found, other circumstances being favorable, that *Cactææ* are not very particular, provided it is a soil riot retentive of moisture. *J. S.*



TAB. 4814.

CEREUS LEMAIRII.

Lemaire's Cereus.

Nat. Ord. CACTEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char, (Vide supra, TAB. 4417.)

CEREUS *Lemairii*; repens, ramis longissimis flexuosis obtuse trigonis, augulis, sub-remote dentatis, dentibus parvis obtusis in axillis pulvinatis, aculeis 1–3 per-brevibus subulatis rectis, floribus maximis speciosissimis, calycis glaberrimi tubo elongato squamis maximis oblongis imbricatis appressis subfoliacis obtecto, sepalis numerosis erecto-patentibus (flavo-rubris) plerisque petala oblonga erecta obtusa æquantibus, stylo staminibus densissime compactis longiore, stigmatis radiis numerosis magnis bifidis.

CEREUS *rostratus*, “Lemaire”? *Salm-Dyck, Cact. Hort. Dyck. p. 51 et 218?* “*Pfeiffer, A. G. Z.*, 1837, p. 371. *sub C. hamato*”?

We received, two years ago, cuttings of a flagelliform *Cereus* from the Royal Botanic Garden of Hanover, bearing the name of “*C. rostratus*, Lemaire.” If it be really the plant so called, and briefly characterized by the Prince of Salm-Dyck, it is most inappropriate*. Its stems might very well have been taken for those of our *Cereus MacDonaldiæ* (figured at Tab. 4707); but we were agreeably surprised, in the month of June, 1854, to see

* All that I can find of descriptive matter is the following, from the *Cact. Hort. Dyck.*:—“*C. rostratus*, Lem.; *suberectus* ramosus 3–4-angularis viridis radicans, costis junioribus acutis tandem obtusis rectiusculis, *quasi hamatis*, areolis in parte superiore tuberculorum decurrentium positis, aculeis 6–8 gracilibus albis fasciculatis.—Caulis ramique *valde extensis scandentes*, plerumque tetragoni, lin. 8–12 crassi. *Flores hucusque ignoti*. A cæteris speciebus differt *gibbis carnois, recurvatim rostratis*, sub pulvillo positis.”

I have placed those expressions in italics which require special attention; and it will be allowed, I think, in the absence of flowers (the most remarkable feature of the plant), that there is really nothing to enable us to identify our plant with that of the author; and a good deal that is at variance with it; for our plant cannot be called “sub-erect,” nor does anything correspond with “costæ rectiusculæ quasi hamatæ” nor is there anything in our plant that can be called *recurvatim rostrata*.” So that I hope I shall stand excused in giving this a new name, and in dedicating one of the most superb of the *Cactæ* to M. Lemaire, who has rendered no small service in the investigation of this family.

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blossoms upon it, though equalling in size those of that fine flowering plant, yet very different in several particulars,—the form of the petals and sepals, for example, and especially in the nature of the calycine tube: in *C. MacDonaldiæ* (and also in *C. grandiflorus*) partially clothed with minute, scattered, distant, shaggy or villous scales; here the tube is quite concealed by large, coloured, quite glabrous scales, the smallest of them almost an inch long, and then gradually enlarging upwards and passing into the sepals. It is equally fragrant with the two species now mentioned, and is, like them, a night-blooming one. Nothing is positively known of its native country; but it happens that I have in my possession a drawing made in Antigua, undoubtedly of this species; so that it is probably a native of that island.

DESCR. *Stems* much elongated, branched, and pseudo-articulate, rooting, thicker than one's finger, dark-green, obtusely triangular, the angles toothed, teeth (or tubercles) small, distant about half an inch from each other, bearing an areolus in its axil; areoles pulvinate, bearing from one to three, very small, subulate, but rather thick, straight *aculei*. Flower arising from an angle of the stem, sessile, curved upwards, very large, twelve inches long, and nine inches across the cup-shaped perianth (for the flower has not the spreading sepals and petals of *C. MacDonaldiæ*). *Calyx-tube* four to five inches long, curved, an inch and a half in diameter, clothed with large, oblong, rather obtuse, leafy scales, an inch and more long, the lower ones pale green; upper and larger ones yellow, margined with red, and these gradually pass into the sepals of the calyx, which are linear-lanceolate, acute rather than acuminate, the larger ones six inches and more long, bright tawny-yellow, streaked or margined with red. Within this are the large, white, oblong, obtuse, numerous *petals*, about equal in length with the inner sepals, but twice or thrice as wide. *Stamens* exceedingly numerous and densely crowded, pale yellow. *Style* very thick, pale yellow, cylindrical. Rays of the *stigma* yellow, more than two inches across, numerous, downy, bifid.

Fig. 1. Pulvinulus and spine:—*magnified*.

Our Subscribers are requested to observe, that the numbering the description of *Bougainvillæ spectabilis* should be 4810 (instead of 4811), and *Ceanothus Lobbianus* should be 4811 (instead of 4810); and they should be transferred to their respective Plates.



TAB. 5775.

CEREUS LIVIDUS.

Livid Cereus.

Nat. Ord. CACTEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 5360.)

CEREUS *lividus*; erectus, robustus, plumbaceo-viridis, caule elato remote articulado 4-6-costato, costis compressis 1-2 poll. profundis, obtusis, rectiusculis, areolis remotis leviter depressis sublanuginosis, aculeis 6-10 rectis rigidis, $\frac{1}{4}$ - $\frac{1}{2}$ poll. longis, brunneis; floribus 10 poll. diametro, albis, calycis tubo glabro, sepalis cum petalis 30-40 lineari-oblongis patentibus obtusis, stigmatibus ad 18.

CEREUS lividus, Pfeiffer Enum. diagn. Cact. 98. Labouret Monog. Cact. 359.

C. Perotetti, Hort. (fid. Pfeiffer.)

One of the most striking of the columnar Cacti in the succulent house at Kew, and procured, I believe from Germany, as a small plant many years ago; since which time it has attained a height of twelve feet, and diameter of four to six inches. Though placed by Pfeiffer (who seems to have seen young plants only) in the section *Cereastri*, with inarticulate stems, it will be seen from the plate that when full-grown the stem is distinctly articulated at regular intervals, and it should hence probably be referred to his section *Protracti*. The specimen here figured is the largest hitherto described, and flowered for the first time in June, 1868. It is a native of Brazil, La Guayra, and Curaçoa.

DESCR. Stem tall, erect, simple or very sparingly branched, twelve feet high in our specimen, with about twelve narrow oblong joints in that space; of a dull leaden green colour, five to six angled (six to eight angled at the very base); angles produced into thick flat straight round-edged wings or ribs, one to one and a half inches deep. *Areolæ* on slight depressions of the wings, about one to one and a half inches apart, circular, one-quarter inch diameter, grey, velvety, bearing six to eight

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marginal spines, which are one-quarter to one-half inch long deflexed grey with red tips, besides one or two central ones of about the same length. *Flowers* one or two, produced on the terminal joint, ascending, ten inches in diameter, white with a yellow-green tinge. *Calyx-tube* five inches long, one inch in diameter, terete, green, smooth, glabrous, with few distant appressed green triangular scales; lobes about ten, linear-oblong, subacute, yellow-green, purplish at the back towards the tip. *Petals* very numerous, in about three series, spreading, narrow obovate-oblong, obtuse or apiculate, erose, ivory white, faintly undulate. *Stamens* excessively numerous, forming a broad cylinder two and a half inches in diameter, and two inches high, of filiform pale-green filaments, the lower most numerous, incurved at the apices; *anthers* small. *Style* very stout; stigmas about eighteen, subulate, erect, yellow.—*J. D. H.*

Fig. 1. Reduced figure of plant.



TAB. 4707.

CEREUS MACDONALDIÆ.

Mrs. MacDonald's Great Night-flowering Cereus.

Nat. Ord. CACTACEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 4417.)

CEREUS *MacDonaldiæ*; ramis elongatissimis repentibus teretibus vel obscurissime angulatis subtuberculatis, tuberculis sparsis irregularibus parvis plerumque spina brevi fusca solitaria, floribus speciosissimis, calycis tubo elongato striato parce squamoso, squamis parvis villosis, sepalis numerosis reflexo-patentibus lineari-acuminatis aurantiaceis, petalis albis lanceolatis erecto-patentibus acuminatis, stylo staminibus longiore.

When our readers are informed that the flowering portion of the specimen here represented exhibits only half the natural dimensions, they may form some idea of the vast size of the flowers of this Night-blooming Cereus, for such it is, like its near relative the well-known *Cereus grandiflorus*: and certainly of the many floral spectacles that have gratified lovers of horticulture at the Royal Gardens of Kew, of late years, few have been more striking than this, to those who were privileged to see the blossoms in bud and fully expanded. The plant was received from Honduras through the favour of Mrs. General MacDonald, and planted at the back of the Cactus-house and trailed against the wall; it first showed symptoms of blossoming in July 1851. A casual observer might have passed the plant in this state, as an unusually large-flowered "Night-blooming Cereus;" but the slightest inspection of the stems and branches, and the different nature of the flower-bud, the patent petals, and above all the great size of the flowers, fourteen inches in diameter from tip to tip of the calyx-sepals, and fourteen inches long from the base of the calyx to the tip of the stigma, all indicate a most distinct species, and one which I have in vain endeavoured to find described in the Prince de Salm-Dyck or other authors on the Cactus-family.

DESCR. So rapid is the growth of this plant that the cutting
APRIL 1ST, 1853.

sent from Honduras soon covered the back wall of a rather lofty greenhouse, with its repent and climbing and straggling *branches*. These vary somewhat in size in different parts of the plant, but are generally not thicker than the little-finger, dark green, terete, or with here and there very obtuse and not continuous angles. The surface is irregularly tuberculated, and in the areole of the tubercle is a short solitary (or sometimes two) inconspicuous black or dark brown spine. The *buds* and *flowers* are so large and so showy, that they would seem as if they could not belong to such meagre, half-starved, leafless branches. The *bud* measures fourteen inches long! Its base is swollen, bulbiform, clothed with densely imbricated hairy scales of a triangular form. The *tube* is long, cylindrical, dark glaucous-green, tinged with brown, striated, partially scaly, with small appressed scales fringed with brown hairs: the compacted imbricated calyx-sepals (including the petals) form an ovate acuminate-oblong head to the bud, orange, streaked with red. At night the *flower* expands, and fades before the evening, to a diameter of fourteen inches! yet the bursting extends no further down the flower than to the top of the long calycine tube. The *calyx* consists of numerous sepals, spreading and soon becoming flaccid and reflexed; they are linear, acute, the outer red, the inner orange; they form a distinct portion from the petals, a saucer-like exterior, if we may so say, not passing into the *petals*, quite differing in shape and colour. These latter form a crown within the highly coloured calyx, but not so regularly a cup-shaped one as in *C. grandiflorus*; the petals, lanceolate or spatulate in form, are not so compact as in that species, and their apices are more spreading. *Stamens* longer than the tube, forming a circle around the style; but the stamens are in numerous series below the style; only in one series above the style. *Style* thick, columnar, longer than the stamens. *Stigma* of many long, papillose, yellow rays.

Our original drawing of *Cereus MacDonaldia*, is of an atlas-folio size, and the space is fully occupied by a small portion of the stem or branch, a side and a front view of a flower, and a fully formed bud. Had we confined our figure to a single flower in quarto, natural size, it could have been seen only from one point of view : but we regret to find that by reducing the scale one-half, it quite takes away from all idea of the magnificence of the original; and the assurance that the plant is twice that size does not convey the correct idea to the mind's eye.

(3768)

CÉREUS MARTIÁNUS. VON MARTIUS*

CEREUS.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

Sepala numerosissima imbricata, basi ovario adnata, in tubum elongatum concreta, exteriora breviora calycinaria, media longiora colorata, intima petaliformia. *Stamina* numerosissima cum tubo concreta. *Stylus* filiformis, apice multifidus. *Bacca* areolata, sepalorum reliquiis squamata aut tuberculosa. *Cotyledones* acuminatae.—Frutices *car-nosi, subglobosi vel elongati, stricti, articulati vel repentes, axi ligneo interne medullifero donati, angulis verticalibus, spinarum fasciculos gerentibus vel inermibus, irregulariter sulcati*. Anguli seu alæ nunc plurimæ, nunc paucissimæ, rarius duæ tantum, et tunc rami compresso-alati inermes. Flores *ampli e spinarum fasciculis lateralibus trunci aut ramorum vetustiorum, aut crenis angulorum orti*. Fructus oviformes, plerumque anno sequente maturescentes, edules. Pfeiffer.

Specific Character and Synonyms.

CEREUS *Martianus*; suberectus ramosus 8-angularis sinibus latiusculis, costis vix prominentibus, areolis approximatis in cristæ tuberculis positis, aculeis exterioribus 6—8 setiformibus albidis (nascentibus rubris) radiantibus, centralibus 2—3 fuscis vix majoribus.

CEREUS *Martianus*. "Zucc."—Pfeiff. *Enum. Cact.* p. 110.



Bot. in S. Curtis. *Illustrated Bot. Dec. 1839.*

The specimen of the CEREUS here represented was obligingly sent from the noble Collection at Woburn, in April, 1839,

1839, bearing both flowers and young fruit. In PFEIFFER's "Enumeratio Cactearum," it is placed next to the well-known *CEREUS flagelliformis* (that frequent ornament of cottage windows), but may readily be known by its different mode of growth, its deeply furrowed stem, and much slenderer hair-like aculei. It is a native of Mexico, and flowers readily and copiously in the spring months.

DESCR. *Stem* nearly erect, but weak, branched, terete, obtuse, about three-fourths of an inch in diameter, about eight-angled, the angles obtuse: studded with areolæ about half an inch asunder, each containing a small white tuft, whence arise six to eight hair-like aculei. *Flowers* large, handsome, of a deep-red rose-colour. *Calyx* of several narrow-lanceolate, acuminate scales, gradually enlarging, and passing into numerous spreading petals. *Germen* subglobose, and, as well as the elongated *tube* of the flower, beset with tufts of hair-like aculei. *Young fruit* globose, green, larger than a hasel-nut, and partially clothed with the persistent tufts of hairs.

TAB. 7705.

CEREUS MOJAVENSIS.

Native of California.

Nat. Ord. CACTACEÆ.—Tribe ECHINOCACTEÆ.

Genus CEREUS, Haw.; (*Benth. & Hook.f. Gen. Plant.* vol. i. p. 849.)

CEREUS mojavensis; glaucescens, caulibus dense caespitosis 2–6 poll. longis $1\frac{1}{2}$ –2 poll. diam. ovatis vel cylindricis 8–11-costatis, costis sinuato-tuberulatis, areolis 5–6 lin. distantibus orbicularibus junioribus tomentosis, aculeis radiantibus 7–8 inæqualibus intertexti centrali solitario omnibus subteretibus curvatis, floribus prope apices caulium enatis 2 poll. longis $1\frac{1}{2}$ poll. diam. rubro-cinnabarinis, calycis tubi pulvilli 18–20 pauci-spinulosi, sepalis oblongis obtusis, petalis oblongo-obovatis obtusis, staminibus petalis fere æquantibus purpureis, stigmatibus 7–8 radiantibus viridibus.

C. mojavensis, Engelm. & Bigel. in *Pacif. Rail. Rep.* vol. iv. p. 33. Engelm. in *Proc. Amer. Acad.* vol. iii. p. 281; & *Bot. Works*, pp. 137, 158, 174. Walp. *Ann. Bot.* vol. v. p. 43. Orcutt, *Rev. Cact. United States*, p. 22.

C. Bigelovii, Engelm. in *Pacif. Rail. Rep.* vol. iv. pl. 4, f. 8; & *Bot. Works* (*Cact. of Whipple's Exped.*), pl. 4, f. 8.

C. mohavensis, S. Wats. *Bibl. Ind.* p. 398.

Echinocereus mojavensis, Rümpl. in *Först. Handb. Cact.* ed. 2, p. 803; K. Schum. *Monogr. Cact.* p. 297.

The *Cereus* here figured is one of the dwarf, tufted species, and is nearly allied to *C. Fendleri*, Engelm. (*Bot. Mag.* t. 6533), from which, as may be seen by a comparison of the plates, it differs entirely in its longer radiating spines, and smaller, differently coloured flowers. It is a native of the dry Mohave district between the Rio Colorado and Mohave Creek in California, where it was discovered in March, 1854, by Lieut. Whipple, whilst making the survey for the Pacific Railway, although, by some oversight, it is altogether omitted in S. Watson's *Botany of California*. The plant from which our figure was made was procured from Mr. Orcutt, of San Diego, California, in 1897, and flowered at Kew in June, 1899.

Descr.—Old plants densely tufted. *Stems* two to six inches high, one and a half to two inches in diam., ovate or cylindric, eight- to eleven-ribbed, light green, slightly glaucous. *Ribs* obtuse, sinuately tubercled. *Areoles* about

MARCH 1ST, 1900.



M.S. del. J.H.P. scul. lith.

L. Reeve & Co. London.

Vincent Brooks Day & Son Lith.

half an inch distant, orbicular, tomentose when young. *Spines* slightly bulbous at the base, the radial seven to eight unequal, more or less interwoven, three-quarters of an inch to one and a half inches long, the central one single, one and three-quarters of an inch to two inches long, all sub-terete, and more or less curved, pale greyish. *Flowers* produced near the apex of the stems, about two inches long, and one and a half inches in diam., bright red-dish-scarlet. *Calyx-tube* bearing about eighteen to twenty small pulvilli, with two to six short, bristle-like, ascending spines to each. *Sepals* oblong, obtuse. *Petals* oblong-obovate, obtuse, entire, closely placed. *Stamens* nearly as long as the petals, purple-mauve. *Stigmas* seven to eight, radiating, green.—*N. E. Brown.*

Fig. 1, a tuft of spines, *of the natural size.*

CEREUS MULTIPLEX. PROLIFEROUS
CEREUS.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

Sepala numerosissima imbricata, basi ovario adnata, in tubum elongatum concreta, exteriora breviora calycinaria, media longiora colorata, intima petaliformia. *Stamina* numerosissima cum tubo concreta. *Stylus* filiformis, apice multifidus. *Bacca* areolata, sepalorum reliquiis squamata aut tuberculosa. *Cotyledones* acuminatæ.—Frutices *carnosi, subglobosi vel elongati, stricti, articulati vel repentes, axi ligneo interne medullifero donati, angulis verticalibus, spinarum fasciculos gerentibus vel inermibus, regulariter sulcati*. Anguli seu alæ nunc plurima, nunc paucissimæ, rarius duæ tantum, et tunc rami compresso-alati inermes. Flores ampli e spinarum fasciculis lateralibus trunci aut ramorum vetustiorum, aut crenis angulorum orti. Fructus oviformes, plerumque anno sequente maturascentes, edules. Pfeiff.

Specific Character and Synonyms.

CEREUS *multiplex*; obclavatus viridis e lateribus copiose prolifer basi lignea attenuatus, vertice umbilicato, sinibus latis, costis 13 verticalibus acutis, areolis ovalibus tomentosis flavo-griseis, aculeis rigidis acicularibus, centralibus 4, basi et apice nigricantibus, infimo longissimo, exterioribus 9—10 brevioribus flavescentibus, irregulariter radiantibus, summis et infimis brevissimis. Pfeiff

CEREUS *multiplex*. “*Hort. Berol.*”—Pfeif. *Enum. Cact. p.* 70.

ECHINOCACTUS *multiplex*. “*Hort.*”



Paint by S. Carter. Glenwood Estate Apr. 1. 1842.

Drawn by S. Carter.

A native, according to PFEIFFER, of South Brazil. Our drawing was kindly made by Mrs. STANNARD from a flowering plant in the rich collection of Messrs. MACKIE of Norwich. The great size of the flower in proportion to that of the plant, and the delicacy and richness of colour of the petals, render this a most desirable plant for cultivation in every collection of succulents. Not having had the opportunity of seeing the specimen itself, our description is necessarily taken from the drawing, which certainly represents the spines somewhat different from what they are described to be by PFEIFFER.

DESCR. *Plant* somewhat globose, but gradually tapering into the woody, irregularly wrinkled base, so that its shape is broadly pyriform (PFEIFFER calls it obclavate). The height is about six inches, and the diameter, in the broadest part, about five. Our specimen does not exhibit the proliferous appearance, whence the name has been derived. The surface is deeply marked with about thirteen deep furrows, and of course as many ridges which are prominent, acute, somewhat sinuated at the keel, and there beset with thickly downy, oval areolae, about two lines long, and placed about an inch asunder. *Spines* ten to twelve, the central one longer and stronger than the rest, especially in the upper areolæ, where they are represented of an uniform, deep, tawny colour, while those on the sides are more regular in size and variegated with dark brown and white. *Flower* six or eight inches long and almost as much across when fully expanded. *Tube* long, clavate, thickly clothed at the base with short tufts of dense, white hairs, while the rest of the tube is beset with longer and dark-coloured ones. *Petals* numerous; outer ones narrow-lanceolate, gradually becoming shorter and broader, so that the innermost ones are almost ovate and acuminate, all of a most delicate rose-colour, deeper towards the apex. *Stamens* numerous, inserted at the mouth of the tube. *Filaments* white. *Anthers* rounded, yellow. *Style* as long as the tube, white. *Stigma* of six or seven linear rays.



(3458)

CEREUS NAPOLEONIS. NAPOLEON'S CEREUS.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

Sepala numerosissima, imbricata, basi ovario adnata, in tubum elongatum concreta, exteriora breviora calycinaria, media longiora colorata, intima petaliformia. *Stamina* numerosissima, cum tubo concreta. *Stylus* filiformis, apice multifidus. *Bacca* sepalorum reliquiis areolata, tuberculosa aut squamata. *Cotyledones* nullæ?—Frutices carnosì, elongati, axi ligneo internè medullifero donati, angulis verticalibus spinarum fasciculos gerentibus regularitèr sulcati. Anguli seu alæ nunc plurimæ, nunc paucissimæ, rariùs duæ tantùm et tunc rami compresso-alati. Flores ampli è spinarum fasciculis aut crenis angulorum orti. D C.

Specific Character and Synonyms.

CEREUS *Napoleonis*; ramis diffusis repentibus triangularibus rarissime articulatis repandis, tuberculis 4—5-spinosis, spinis rigidis patentibus.

CEREUS triangularis, var. major. *Salm-Dyck. Otto, Allgemeine Gartenzeitung*, 1833.

CACTUS *Napoleonis*. *Hort.*

We received this plant at the Botanic Garden, Edinburgh, from Mr. M'KAY, at Clapton, about ten years ago. It has repeatedly formed buds, but no blossoms expanded till now (September, 1835). The flower opened in the morning, and closed towards the afternoon; it is very like that of *C. grandiflorus*, and is slightly, not very agreeably, perfumed. The far greater length of its joints, their different form, and the shape of the edges between the tubercles, prevent me from considering it a variety of *C. triangularis*.

DESCR.

DESCR. *Stem* much branched; branches diffused, rooting, very distantly jointed, light green, with three acute angles, and concave sides; *angles* tubercled, with repand intervals, about an inch and a half long, tubercles with four or five rigid, stellate prickles (about four and a half lines long) having tumid bases. *Flower* (eight inches long, and when fully expanded six inches across) ascending; *tube* (three inches long, ten lines broad) green, furrowed, intervening ridges round, and having a few triangular sub-appressed deep-red scales, gradually enlarging upwards, and passing into the straw-coloured, lanceolato-linear, outer segments of the *perianth*, the inner segments of which are pure white, somewhat shorter, broader, spathulato-lanceolate and crenate at the apex. *Stamens* numerous, yellow, declined, ascending at the apex, shorter than the perianth; *anthers* erect, small. *Pistil* sub-exserted; *stigma* yellow, multifid, segments subulate, spreading from their middle; *style* stout, cylindrical, ascending. *Germen* incorporated with the base of the tube of the perianth, one-celled. *Ovules* numerous, fixed to a long seed-stalk. *Graham*.

TAB. 6774.

CEREUS PAUCISPINUS.

Native of New Mexico.

Nat. Ord. CACTEÆ.—Tribe ECHINOCTANEÆ

Genus CEREUS, *Haworth; (Benth. et Hook. f. Gen. Pl. vol. i. p. 849.)*

CEREUS (Echinocactus) paucispinus; humilis, crassus, draceus, ovoideus v. ovoideocylindraceus, perviridis, caule simplici v. parce ramoso sæpe deforme, costis 5–7 magnis latis interruptis, sulcis sursum acutis, mamillis subhemisphericis discretis v. subconfluentibus lævibus, areolis spinigeris remotis, aculeis 3–7 robustis basi tuberosis radiantibus subrecurvis pallide rufo-fuscis v. brunneis demum nigrescentibus, centrali sæpissime v. rarius robusto subangulato atro-fusco sursum verso seu porrecto, floribus sub vertice latralibus $2\frac{1}{2}$ –3 poll. diam., ovarii pulvillis 10–15 aculeolis 6–10 instructis, sepalis inferioribus triangularibus lanceolatis aculeiferis superioribus linearibus, petalis ad 30 erecto-patulis spathulatis apice rotundatis integris fusco-coccineis concavis, filamentis elongatis antheris parvis purpureis, stigmatibus 8–10 erectis viridibus.

C. paucispinus, *Engelm. Cact. U. S. Mex. Bound. Surv. p. 37, t. 56.*

This plant was very imperfectly known at the date of its first publication by Dr. Engelmann, whose materials for the description and plate of it appear to have been very poor: nor should I have recognized it from the latter but for Mr. Loder, who sent it under what is no doubt its proper name, it is a native of the region bordering Mexico in the United States. Dr. Engelmann remarks that it grows on rocks and gravelly limestone hills, from the San Pedro to the mouth of the Pecos river, where it takes the place the more western *C. polyacanthus*, which further east is represented by *C. Ræmeri*, and further west by *C. phæniceus*, from all which it is distinguished by the few ribs and few dark spines.

The Royal Gardens are indebted to E. G. Loder, Esq. for the specimen here figured, which flowered in May the present year. Like most of the extra-tropical North American species of Cacti, it may be successfully cultivated in the climate of Surrey in a frame in the open air, where however, attention must be paid to watering at the proper season only.

SEPTEMBER 1ST, 1884.



DESCR. *Stems* live to nine inches high, by two to four in diameter, rather deformed, constricted and divided, deep dark green with five to seven grooves, separating thick irregular tumid hemispherical ridges one-half to three-quarters of an inch in diameter, with rounded tips; mamillæ sometimes hemispheric, at others elongate and confluent, smooth, crowned with a very small areola, from which tilt spines spring. *Spines* three to seven, stout, tumid at tie' base, radiating, straight or slightly recurved, pale red-brown; central one absent, or if present robust and. darker than the others. *Flowers* axillary towards the top of tie' stem, three inches broad, two and a half in diameter. *Calyx-tube* subcylindric, with ten to fifteen clusters of short pale spines. *Outer sepals* oblong, obtuse, aculeate. Petals about thirty, elongate-spathulate, with concave rounded tips, suberect and spreading, dark red with a brown tinge. *Stamens* very numerous; filaments conniving in an elongated cone; anthers small, purple. Stigmas about ten, suberect, stout, green.—*J. D. H.*

Fig. 1, Bases of spines; 2, stigmas: —both enlarged.

TAB. 7648.

CEREUS PAXTONIANUS.

Native of Brasil?

Nat. Ord. CACTEÆ.—Tribe ECHINOCACTEÆ.

Genus CEREUS, Haw.; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 819.)

CEREUS (Colubri) *Paxtonianus*; caule gracili columnari 5–6-gono flexaoso ad 1 poll. diam. parce ramoso laride viridi, costis compressis obtusis sinuatis vix lobatis, pulvillis subconfertis vix $\frac{1}{4}$ poll. distantibus parvulis glabris, aculeis 8–10 acicularibus radiantibus lævibus 2 interioribus longioribus inæquilongis longiore $\frac{1}{4}$ poll. longo, floribus amplis, 3–4 poll. diam., calycis tubo $2\frac{1}{2}$ poll. longo cylindræo $\frac{1}{2}$ poll. diam. lævi glabro pallide viridi bracteolis paucis dentiformibus brunneis instructo, perianthii segmentis 4–5-seriatis patenti-incurvis lanceolatis subacutis exterioribus dorso viridibus brunneo marginatis et variegatis, interioribus albis, filamentis brevibus, antheris minutis, stylo valido exserto, stigmatibus 12 linearibus fere $\frac{1}{2}$ poll. longis obtusis radiantibus.

C. Paxtonianus, Monv. ex Salm-Dyck, *Cact. Hort. Dyck*, Ed. II. p. 211. *Foerst. Handb. Cact.* p. 727. *Labouret, Monogr. Cact.* p. 371. *K. Schumann, Gesam. Besch. der Kakteen*, p. 135.

C. Cavendishii, Monv. l. c. *Rev. Hort.* 1857, p. 521.

The name *Cereus Paxtonianus* first appeared in Monville's trade catalogue of *Cactæ*, from which it was taken up by Prince Salm-Dyck, together with *C. Cavendishii*, which was assumed to be a different species. Of course both came from the magnificent collection of the Duke of Devonshire at Chatsworth, of which Mr. (afterwards Sir Joseph) Paxton was the keeper, whence the names. Their native country was and is unknown. Differing a little in habit and colour, they came to be regarded as different species, and it was many years before either flowered; and until *C. Paxtonianus* did so at Kew, *C. Cavendishii* alone had done so. The flower of the latter is briefly described in the "Revue Horticole," 1857, p. 521, and the description precisely accords with that of the plant here figured. Schumann was the first to unite the two plants under the one name.

The specimen here figured of *Cereus Paxtonianus* was purchased for the Royal Gardens, Kew, from Mr. A. Bencke, dealer in Cacti, &c., Birkenwerder, near Berlin, APRIL 1ST, 1899,



in whose catalogue-it appears as "*C. Paxtonianus*, Monv., Syn. *C. Cavendishii*, Monv." It flowered for the first time in the Cactus House in September, 1898.

Descr.—Stem of the Kew specimen four feet high, and about an inch in diameter, erect, flexuous, branching towards the top, five to six angled, very lurid green, angles compressed, sinuate, studded with spine-bearing pulvilli at intervals of about a quarter of an inch, the larger spines of which cross one another. *Pulvilli* glabrous, bearing about twelve radiating, smooth, straight, dark brown spines of unequal length, two of which are more than twice as long as the others, the longest being about a quarter of an inch long. *Flowers* three to four inches in diameter, white. *Calyx-tube* two and a half inches long by about half an inch in diameter, cylindric, funnel-shaped below the sepals, quite smooth, unarmed, pale bright green, bearing few distant minute brown tooth-like scales, which become much longer upwards passing into the outer sepals. *Perianth-segments* very many, in several series, linear-lanceolate, sub-acute, spreading and incurved; outer segments (sepals) dorsally green, edged, and clouded towards the tip, and sometimes on the inner surface also with light brown, inner segments (petals) quite white. *Stamens* very numerous, many-seriate, filaments slender, shortly exserted at the mouth of the perianth, anthers minute, yellow. *Style* stout, much longer than the stamens, bearing a dozen linear obtuse stout, radiating stigmas, about half an inch long.—*J. D. H.*

Fig. 1, Pulvillus with spines; 2, summit of style and stigmas:—*Both enlarged.*

**CÉREUS PENTÁLOPHUS; β subarticulatus. FIVE-
WINGED CEREUS, somewhat jointed var.**

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

Sepala numerosissima imbricata, basi ovario adnata, in tubum elongatum concreta, exteriora breviora calycinalia, medio longiora colorata, intima petaliformia. *Stamina* numerosissima cum tubo concreta. *Stylus* filiformis, apice multifidus. *Bacca* areolata, sepalorum reliquiis squamata aut tuberculosa. *Cotyledones* acuminatæ.—Frutices *carnosi subglobosi vel elongati, stricti, articulati vel repentes, axi ligneo interne medullifero donati, angulis verticalibus spinarum fasciculos gerentibus vel inermibus regulariter sulcati*. Auguli seu alæ nunc plurimæ, nunc paucissimæ, rarius duo tantum, et tunc rami compresso-alati inermes. Flores ampli e spinarum fasciculis lateralibus trunci aut ramorum vetustiorum, aut crenis angulorum orti. Fructus oviformes, plerumque anno sequente maturescentes, edutes. Pfeiff.

Specific Character and Synonyms.

CEREUS pentalophus; erectus cinereo-viridis obtusus, costis 5 verticalibus obtusis, fasciculis approximatis, areola juniore velutiuia, acuteis 5—7 setaceis divergentibus, junioribus albidoflavidis, adultis griseis.

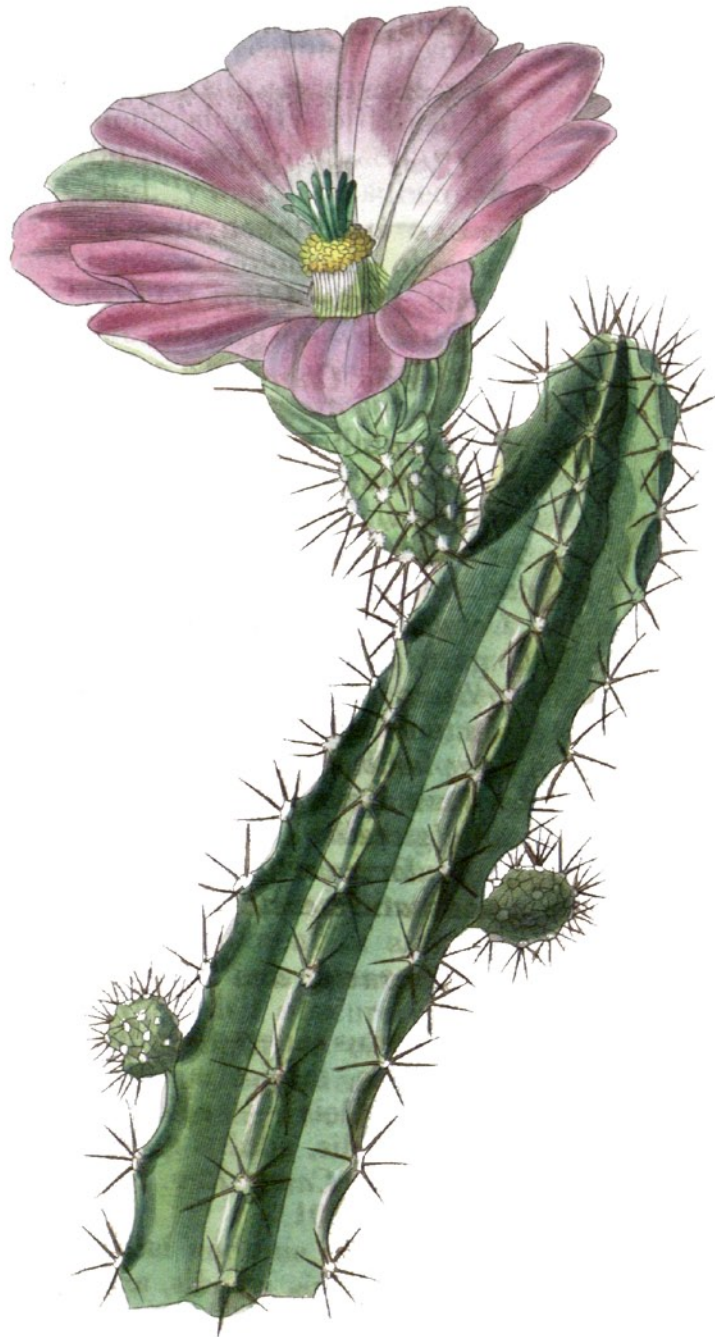
CEREUS pentalophus. De Cand. *Rev. des Cact.* p. 117. Pfeiff. *Enum. Cact.* p. 101.

(α .) *simplex*; caule simplice, sinubus latis obtusis, costis parum prominulis, aculeis albidis, areolis subnudis.

CEREUS propinquus. De Cand.

(β .) *subarticulatus*; caule ramosissimo, subarticulato, costis irregularibus subrepandis vel tuberosis, sinubus angustioribus, aculeis junioribus flavescentibus, areolis albo-lanatis. Pfeiff.

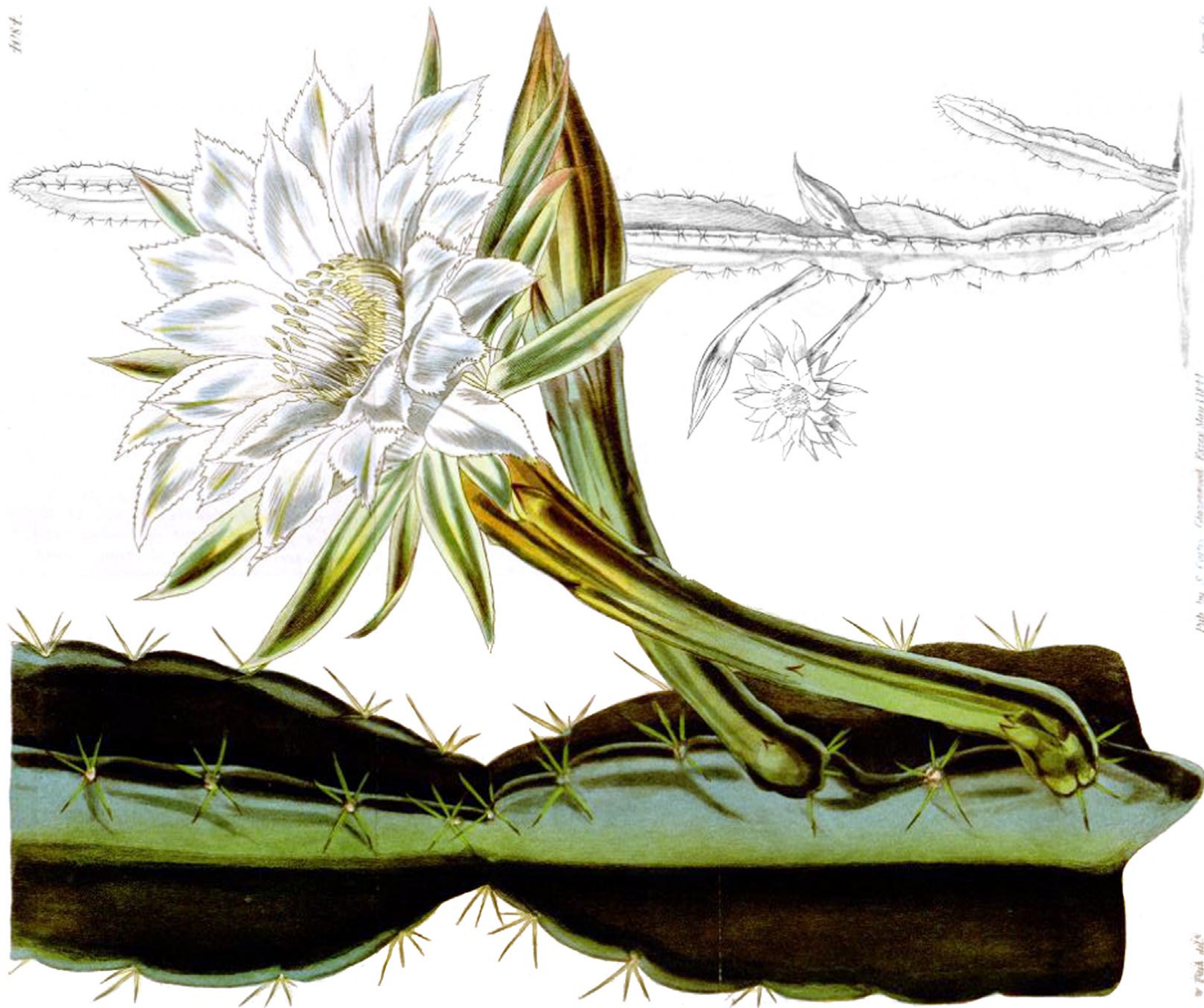
CEREUS leptacanthus. D C. (Tab. nostr. Tab. 3651.)



Pub by S. Curtis Glazenwood Essex April 1853

Swan So

C. pentalophus, with its varieties above quoted from DE CANDOLLE, was discovered by Dr. COULTER in Mexico, but it does not appear from the descriptions that its flowers were known previous to the blossoming of the present individual in Mr. MACKIE's collection at Norwich. The flower is exceedingly handsome, of a fine rose colour, paler and almost white in the centre, where are the yellow anthers, and rising above them is the cluster of dark blue-green *styles*. The *germen* is prickly like the stem.



(4084)

CÉREUS PITÁJAYA. VARIABLE CEREUS;
or PITAJAYA.

Class and Order.

ICOSANDRIA MONOGYNIA.

(NAT. ORD.—CACTEÆ.)

Generic Character.

Sepala numerosissima imbricata, basi ovario adnata, in tubum elongatum concreta, exteriora breviora calycinaria, media longiora colorata intima petaliformia. *Stamina* numerosissima cum tubo concreta. *Stylus* filiformis, apice multifidus. *Bacca* areolata, sepalorum reliquiis squamata aut tuberculosa. *Cotyledones* acuminata.—Frutices *carnosi, subglobosi vel elongati, stricti, articulati vel repentes, axi ligneo interne medullifero donati, angulis verticalibus, spinarum fasciculos gerentibus vel inermibus, regulariter sulcati. Anguli seu alæ nunc plurima, nunc paucissimæ, rarius duce tantum, et tunc rami compresso-alati, inermes. Flores ampli e spinarum fasciculis lateralibus trunci aut ramorum vetustiorum, aut crenis angulorum orti. Fructus oviformes, plerumque anno sequente maturescentes, edules. Pfeiff.*

Specific Character and Synonyms.

CEREUS *Pitajaya*; erectus longe articulatus altus simplex vel ramosu glaucescens, costis profundis 4 (nunc 3 v. 5) compressis obtusis undulato-repandis, areolis remotis albo-tomentosis seu lanatis aculeis rectis rigidis mediocribus 4—6—8 inæqualibus exterioribus stellatim patentibus fuscis.

CEREUS *Pitajaya*. De Cand. Prodr. 3. p. 466.

CACTUS *Pitajaya*. Jacq. Select. Stirp. Amer. p. 151.

CEREUS *undulosus*. De Cand. Prodr. 3. p. 467. (according to Pfeiffer).:

CEREUS *variabilis*. Pfeiff. Enum. Cact. p. 105.

CACTUS, &c. Plum. Am. ed. Burm. t. 194? et tab. 199. f. 1?

This

This has been long cultivated in the Royal Botanic Gardens of Kew, under the name here retained, and is a very handsome species, growing erect, bearing very large, showy flowers, and with stems of a singularly glaucous-green tint. There is much difficulty in determining the synonyms of this *CEREUS*. PFEIFFER appears to have changed the old specific name, conferred by JACQUIN solely on account of the variable character, and he has included under it two figures of PLUMIERE, which appear to me extremely different in habit from this plant, and from each other, and which I have quoted with a mark of doubt:—and he refers the *CEREUS undulosus* of DE CANDOLLE hither, which is described as having spines two inches long; while, on the other hand, he keeps the *C. obtusus* of HAWORTH distinct, which seems too nearly allied to the present. A good series of figures alone can well illustrate the species of this difficult and now extensive family. Our plant is described as an inhabitant of Carthageria; but PFEIFFER adds Mexico, Peru, Brazil, and the West Indies. Its noble flowers are produced with us in July, generally expanding towards evening, and fading in the morning of the following day,

DESCR. A tall-growing, erect, simple, or branched species, with *stems* three to four inches in diameter, constricted at very uncertain distances, glaucous, especially the young shoots, presenting sometimes three, generally four, occasionally five, deep and broad furrows, and as many projecting, much compressed angles or wings, obtuse at the margin, and crenato-repand. *Areolæ* distant, densely woolly, compact. *Spines* scarcely half an inch long, straight, stellated, disposed irregularly in length, four to six or eight in number, the central one often the stoutest, all of a palish-brown colour. *Flowers* large, handsome, showy, from an areola of the margin of the costæ. *Tube* a span long, widening upwards, set with distant, appressed, triangular scales, which gradually pass into the linear-oblong, acuminate, white, tinged with brownish-green, sepals. *Petals* numerous, spreading, (as well as the sepals) white or cream-coloured, obovato-lanceolate, acuminate, sharply-serrated. *Stamens* numerous. *Filaments* assurgent. *Anthers* yellow. *Stigma* rayed, as in the Genus.

* Fig. 1. Much reduced figure of the entire flowering Plant. 2. Portion:—*nat. size*.

TAB. 7205.

CEREUS PROCUMBENS.

Native of Mexico.

Nat. Ord. CACTEÆ.—Tribe ECHINOCACTEÆ.

Genus CEREUS, Haw.; (*Benth. et Hook. f. Gen. Plant.*, vol. i. p. 849.)

CEREUS (Echinocereus) *procumbens*; humilis, caule subterete v. 4-5-gono ramosissimo articulato glauco-virescente, tuberculis distinctis spiralibus seu 4-5-faris, areolis parvis orbiculatis, aculeis 4-7 radiantibus brevibus rigidis albis apice fuscis, centrali nullo v. longiore, floribus sub apice ramorum lateralibus amplis, ovarii pulvillis sub 25 albido-villosis, aculeolos rigidos 6-9 breves variegatos gerentibus, sepalis tubi exterioribus 12-15 aculeoliferis, superioribus sub 15 lineari-lanceolatis acuminatis, petalis 18-30 roseis patulis lineari-spathulatis acutis v. obtusis erosus v. integris, staminibus densissimis, antheris minutis flavis, stigmatibus 10-14 viridibus, bacca ovoidea, seminibus parvulis lenticularibus basi hilo oblongo truncatis verruculosus.

C. procumbens, Engelm. in *Plant. Fendler*, 50 (1810); *Plant. Lindheim.* pt. ii. (1850) p. 203; *Synops. of Cactæ of U. States, &c.* p. 30; *Cactæ Mex. Bound. Surv.* p. 38, t. 59, f. 1-11; *Trelease & A. Gray, Bot. Works of G. Engelman*, pp. 114, 120, 139, 200, t. 59, fig. 1-11; *Young Fl. Texas*, p. 275.

The beautiful plant here figured, though undoubtedly the *Cereus procumbens*, differs in a few points from the elaborate description of the accomplished monographer of North American cacti, in the larger flowers with more numerous petals, rose (not violet) in colour, in the pale glaucous green colour (not "perviridis"), in the great length of the central spine of the pulvilli, which Engelman describes as either absent or hardly longer than the radiating spines. The only species with which it could be confounded is *C. Berlandieri*, Engelm., a native of the adjoining district of Southern Texas, but that species has very narrow, almost linear, petals.

C. procumbens is a native of the neighbourhood of Matamores in Mexico, a town on the banks of the Rio Grande del Norte, which separates Texas from Mexico, and is about thirty miles from the embouchure of that river. Plants of it were purchased for the Royal Gardens from Mr. J. H. Erkener, of San Antonio in Texas, in 1885, which flowered in May of the present year.

NOVEMBER 1ST, 1891.

Mr. Watson informs me that the species of *Echinocereus*, even if grown in full sunshine, very rarely flower under cultivation at Kew, though they grow freely. That here figured was kept dry for nearly half the year.—*J. D. H.*

Fig. 1, Pulvillus and spores; 2, calyx segments; 3, stamen; 4, stigma:—*all enlarged.*



Vincent Brodia, litop.

TAB. 5360.

CEREUS PTEROGONUS, *Lem.**Wing-angled Cereus.*

Nat. Ord. CACTACEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. Perigonii tubus ultra germen longe productus, pulvilligerus; *phylla* numerosissima; *sepaloidea* ifima squammeformia, *superiora* elongata, spiraliter imbricata, in axillis sæpissime seti- vel aculeifera, *petaloidea* longiora plus minusve recurvato-patentia, corollam iufundibuliformem æmulantia. *Stamina* numerosissima, basi tubo adnata, superne libera, limbo breviora. *Stylus* filiformis, *stamina* vix superans. *Stigma* multiradiatum, radiis linearibus. *Bacca* squamata aut tuberculata, pulvilligera. *Cotyledones* liberæ, foliaceæ.—Caulis *carnosus, ætate indurescens, brevis vel elongatus costatus vel angulosus, pulvilligerus, crassus v. tenuis, erectus vel reptans, continuus vel articulatus, simplex vel ramosus*. Flores *laterales, sæpissime nocturni, ephemeri, aut aliquot dies aperti*. *Salm-Dyck.*

CEREUS (§ Radicantes) *pterogonus*; caule e basi ramoso ramisque articulatis læte viridibus divaricatis rigidissime humi adpressis, radicantibus 4–5-angulatis, costis compressis acutatis inter pulvillos obrepandis, lateribus superne excavatis inferne planiusculis, pulvillis immersis valde confertis parvulis vix tomentosis, aculeis 3–4 aciculatis rigidis fulvidis summo sæpe longiore, cum setaceis quibusdam deciduis. *Salm. Dyck.*

CEREUS pterogonus. *Salm-Dyck, Cact. Hort. Dyck. pp. 52, 221.*

We cannot but be glad to see the encouragement given to the cultivation of succulent plants in some of the late numbers of the ‘Gardeners’ Chronicle.’ As a general collection of such plants, and for the interest felt in them by the public, we may confidently refer to the ‘Succulent House,” in Kew Gardens, which I believe stands unrivalled in Europe. There are among them the most strange and varied forms, especially of the *Cactus* group, and it is well known that the genus *Cereus*, one of which we have now under consideration, affords the most magnificent blossoms, frequently of the most gorgeous colours, of any in nature.

The flowers of *Cereus pterogonus*, if not equal in size or in beauty to those of *Cereus Macdonaldiae* (see our Tab. 4707) have

FEBRUARY 1ST, 1863.

the advantage of expanding in the daytime, and are not ephemeral; those of the last-named species open only in the night, and close before sunrise the next morning. This species, yet rare, we believe, in Europe, was imported from Carthagera, and has now blossomed for the first time. It has flowered with us in August, 1862.

DESCR. A straggling-growing *plant*, needing the support of stakes, or to be trained against a wall. *Branches* articulated; joints three inches or more in diameter, and six to seven inches long, usually four-angled, rarely five, or in other words formed of four to five deep fleshy wings, flattened at the sides, an inch and a half deep, slightly sinuato-lobate at the margin, the sinus of the lobes bearing each a tuft (*pulvillus*) of hair-like bristles, and a spreading and somewhat deflexed tuft of three to four unequal *aculei*, five to six lines long, slender and straight, accompanied by two to three long setaceous bristles. *Flowers* sessile, arising from just above the tuft of bristles at the margin, five to six inches long in the tube, and as much more across the fully blown pure white *flower*. *Tube* green, sepaloid; *scales* ovate, acuminate, the lowest terminated by setiform bristles. *Stamens* pale yellow, very numerous, erect or nearly so, united at the base, and forming a crown at the mouth of the tubes. *Style* columnar, projecting a little beyond the stamens. *Stigma* of many, about twenty, spreading, subulate, fleshy *rays*.

Fig. 1. Cluster of the spines,—*magnified*.



CEREUS REDUCTUS.

Dingy Cereus.

Nat. Ord. CACTEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 4417.)

CEREUS reductus; erectus elongatus cylindraceus lurido-virens longitudinaliter plurisulcatus, sulcis profundis sub 14, costis tuberculatis, tuberculis seu mamillis ovalibus obscure hexahædriis convexis compressis conspicue areolatis, areolis lanatis, spinis sub 11 rectis acicularibus inequalibus rectis fuscis apice rigidissimis basi interioribus junioribus fulvis sub-8 elongatis validioribus reliquis quintuplo minoribus, floribus subaggregatis terminalibus, calycibus inermibus basi squamosis, petalis (albis roseo-tinctis) oblongo-spathulatis subserratis mucronatis.

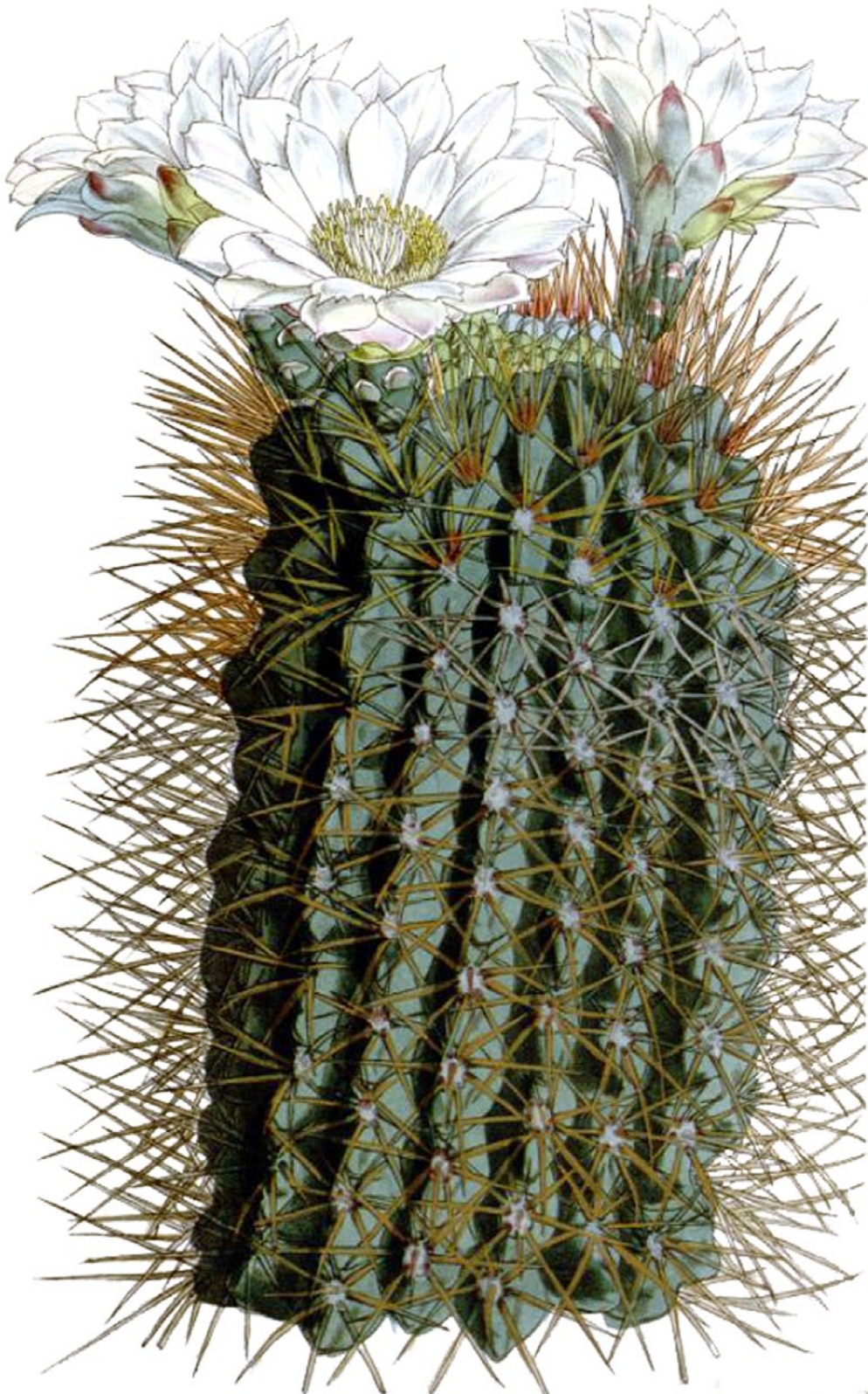
CEREUS reductus. Link, *Enum. v. 2. p. 21. Pfeiff. Cact. p. 75.*

CACTUS nobilis. Haw. *Syn. p. 174 (not Aiton, Hort. Kew).*

An old inhabitant of the Cactus house of the Royal Gardens, originally received from Mexico. A very dingy looking species except when in flower, when the pure white corollas, with a slightly pink tinge, have a very pretty effect.

DESCR. *Stem* sometimes attaining a height of three feet, erect, terete or cylindrical, four to five inches broad, dingy glaucous-green, deeply furrowed longitudinally with about fourteen or fifteen furrows, the ridges tuberculate or mamillate; *mamillæ* large, in a regular series, very convex, oval or obscurely six-sided, compressed, the centre having a conspicuous woolly *areola* from whence diverge about eleven sharp aciculated spines, of which the greater number are large, tawny in the young state, brown when old, always deeper at the base, three or four are much the smaller of the cluster. *Flowers* two or three or more together, from the summit of the plant. *Calyx-tube* dark green, glabrous, scaly with remote scales, which upwards gradually pass into oblong *sepals* with white margins, and those again into the spreading *petals*, white, partially tinged with rose, the apex slightly serrated and mucronate. *Stamens* numerous,

MAY 1ST, 1849.



very compact. *Stigma* of many erecto-patent, subulate, downy rays. W. J. H.

CULT. An old inhabitant of this garden, said to be a native of Mexico; but we have no knowledge of the particular locality, never having received it amongst the numerous collections imported of late years from different parts of South America. We have grown it in a mixture of loam and lime rubbish siftings, and kept it in a house the temperature of which averages 50° in winter. During that season we give it little or no water, but in summer allow it to receive the full power of the sun, and in hot dry weather frequently sprinkle it with water overhead, which should be always done in the morning, before the sun is powerful, or in the evening. Care must be taken not to allow the mould in the pot to become excessively wet; for if it continue in a wet state, the soft roots are apt to be destroyed. As this species rarely produces off-sets, it is still a rare plant in this country. *J. S.*

(3125)

CEREUS ROYENI. VAN ROYEN'S CEREUS.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

Sepala numerosissima imbricata basi ovario adnata, in tubum elongatum concreta, exteriora breviora calycinaria, media longiora colorata, intima petaliformia. *Stamina* numerosissima cum tubo concreta. *Stylus* filiformis apice multifidus. *Bacca* sepalorum reliquiis areolata tuberculosa aut squamata. *Cotyledones* nullæ?—Frutices *carnosi elongati axi ligneo interne medullifero donati, angulis verticalibus spinarum fasciculos gerentibus regulariter sulcati*. Anguli seu alæ nunc plurimæ, nunc paucissimæ, rarius duæ tantum et tunc rami compresso-alati. Flores ampli e spinarum fasciculis aut crenis angulorum orti. D C.

Specific Character and Synonyms.

CEREUS* *Royeni*; erectus simplex continuus 9—10-angulatus, angulis acutiusculis, spinis fasciculatis 6—8 aciculiformibus fuscis junioribus lana laxa paulo longioribus, tubo floralis brevi crassa inermi, lobis exterioribus parvis viridi-purpureis, interioribus roseis omnibus subacutis.

CEREUS *Royeni*. *Haw. Syn. p.* 182. *De Cand. Prodr. v.* 3. *p.* 466.

CACTUS *Royeni*. *Linn. Sp. Pl. p.* 688. *Ait. Hort. Kew. ed. 2. v.* 3. *p.* 177.

DESCR. With us, this plant has attained a height of about three feet and a half, and a diameter of an inch and a



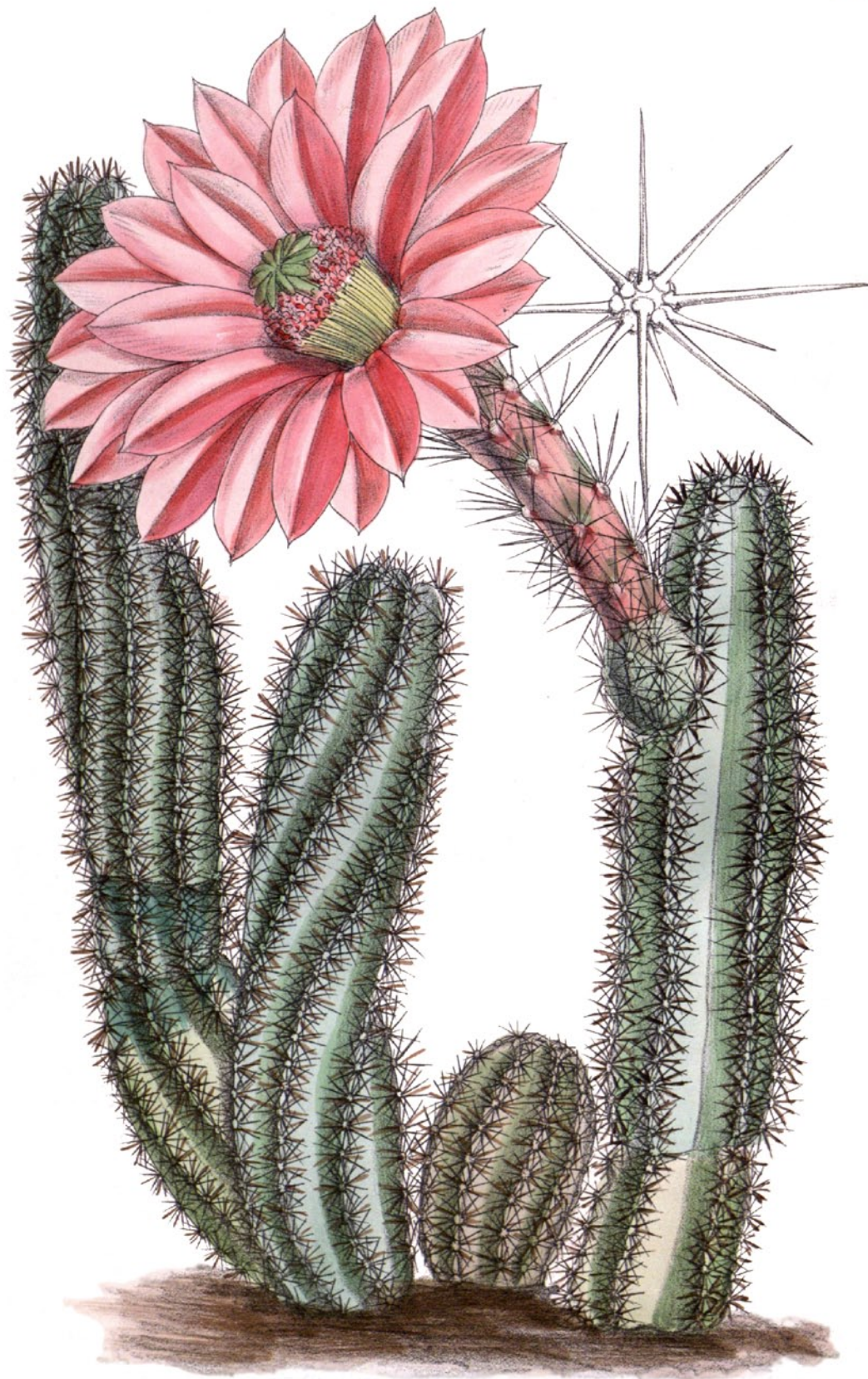
* From the Latin word *Cereus*, signifying *pliant*, which many of the species are.

a half or two inches, erect, straight, or somewhat flexuose, of nearly the same width throughout, obtuse at the extremity, marked with eight to ten prominent, rather acute angles or ridges, which are beset with little tufts of rather long, lax, and deciduous wool, whence arises a spreading (or when young erect) cluster of dingy brown, long, slender, and sharp aculei, some of them nearly an inch in length, longer than the wool. From a tuft of this description (the woolly substance being increased in quantity, and rising one above another in each successive season,) springs a *flower*, large, indeed, in proportion to the size of the plant, but not remarkable for the beauty of its colour. The *tube* is about two inches long and three-fourths of an inch thick, of an olive green colour, glabrous and unarmed, expanding upwards into many imbricated, fleshy scales or segments, which are ovate and acute, often tinged with rose colour. These may be considered as constituting the *calyx*: for within is a series of ovate, pale rose-coloured *petals*, shorter than the calyx. *Stamens* numerous, shorter than the corolla. *Anthers* linear-oblong, pale yellowish-white. *Style* exserted, white, jointed near the base, and deep rose coloured below the joint. *Stigma* of about seven or eight rays which are erect, or connivent, white.

The difficulty of determining the various species of the CACTUS tribe, is well known to those who have had occasion to study them. In the present instance, we have given a plate of an individual, which certainly, in description, is so little at variance with the CEREUS *Royeni*, that I am inclined to think it is that species: although the exterior scales of the flower are not *acuminated*, as DE CANDOLLE describes them to be; nor are the petals white, but rose-coloured.

Our specimens were obligingly communicated to the Glasgow Botanic Garden by — RYBURN, Esq. of this place, who received them from Mr. SWAPP of Grenada. Our tallest plant, three feet and more in height, flowers readily in the spring and summer. We possess a very similar plant from Trinidad, whence it was sent by the late Baron de SHACK: but it has considerably shorter spines and is, probably, the CEREUS *lanuginosus* of Mr. Haworth (CACTUS *lanuginosus*. LINN.)

Fig. 1. flower: *nat. size*. 2. Anther: *magnified*. 3. Style and Sectin of the Germen: *nat. size*. 4. Stigma: *magnified*. 5. Tuft of Spines and Wool: *nat. size*.



TAB. 8096.

CEREUS SCHEERII.

Mexico.

CACTACEÆ. Tribe ECHINOCACTEÆ.

CEREUS, Haw.; *Benth. et Hook. f. Gen. Plant.* vol. i. p. 849.

Cereus Scheerii, Salm-Dyck, *Cact. Hort. Dyck*, p. 190; *Labouret Monogr. Cact.*, p. 317; affinis *C. oinerascenti*, DC., sed rigidior, areolis vix elevatis et magis confertis differt.

Planta succulenta, laxa caespitosa, 6 poll. alta. *Caules* erecti, 1-1 $\frac{1}{3}$ poll. crassi, 6-7-angulati, recti vel torti, glaucescenti-virides; anguli acutati, vix tuberculati; areolæ parvæ, confertæ, minute tomentosæ; aculeæ rectæ, exteriores 8-12, radiantes, interiores solitariæ, porrectæ. *Flores* laterales; tubus circa 2 $\frac{1}{2}$ poll. longus, pulvillis 50-60 setas albas 4-12 gerentibus instructus; limbus 3 poll. diam., pulchre kermesino-roseus; petala lanceolata, acuta. *Stamina* tubo subæquilonga; filamenta pallide lutea; antheræ rubræ. *Stylus* exsertus, viridis; stigma, 10-12 partitum. *Echinocereus Scheeri*, Lemaire, *Les Cact.* p. 57; K. Schum. *Monogr. Cact.* p. 253, fig. 48. *E. Scheerii*, Rümpl. in *Först. Handb. Cact.* ed. 2, p. 801.

This pretty species belongs to the same group as the well-known *C. cinerascens*, DC., *C. procumbens* (B. M. t. 7205), *C. pentalophus* (B. M. t. 3651) and *C. mojaviensis* (B. M. t. 7705), all of which are dwarf and more or less tufted plants, with large brilliantly coloured flowers. *C. Scheerii* was discovered by Mr. J. Potts near Chihuahua in Mexico and sent by him to Mr. Frederick Scheer of Kew, some time prior to 1850. The plant here figured flowered at Kew in 1900 and during the two succeeding years, but subsequently died.

Descr.—*Plant* laxly tufted, about six inches high. *Stems* erect, one to one and a quarter of an inch thick, six to seven angled, straight or twisted, dull glaucous-green; angles acute; spine-cushions small, scarcely prominent, closely placed, minutely tomentose; spines short, straight, the eight to ten outer radiating, one central directed outwards. *Flowers* produced at the side of the stems, bright carmine-rose more or less flushed with mauve; tube about two and a half inches long, with fifty to sixty spine-cushions bearing four to twelve white bristle-like spines scattered along it, but more crowded upon the ovary; limb spreading, about three inches in diameter; petals

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lanceolate, acute. *Stamens* about as long as the tube; filaments pale yellow anther red. *Style* exserted, green, stigma ten to twelve partite.—N. E. BROWN.

Fig. 1, a spine-cushion, *enlarged*.

NOTE.—Frederick Scheer was an independent botanist who for some time resided at Kew and particularly devoted himself to the study of *Cactaceæ*. He published in 1840 an excellent account of Kew under the title of “Kew and its Gardens.” This and other actions were largely effective in averting the breaking up of the collections which had been contemplated, and in their being taken over by the nation from the Crown. (See *Kew Bulletin*, 1891, pp. 324-5, and an obituary notice in the *Journal of Botany*, 1869, p. 268).—W. T. T.-D.

(3566)

CEREUS SERPENTINUS. SERPENT-LIKE CEREUS.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

Sepala numerosissima imbricata basi ovario adnata, in tubum elongatum concretum, exteriora breviora calycinalia, media longiora colorata, intima petaliformia. *Stamina* numerosissima cum tubo concreta. *Stylus* filiformis apice multifidus. *Bacca* sepalorum reliquiis areolata tuberculosa aut squamata. *Cotyledones* nullæ?—Frutices *carnosi elongati axi ligneo interne medulifero donati, angulis verticalibus spinarum fasciculos gerentibus regulariter sulcati*. Anguli seu alæ nunc plurimæ, nunc paucissimæ, rarius duæ tantum et tunc rami compresso-alati. Flores ampli e spinarum fasciculis aut crenis angulorum orti. D C.

Specific Character and Synonyms.

CEREUS *serpentinus*; subrepens flexuosus subscandens obtusissime 11—12-gonus, setis fasciculatis lanugine parca demum obsoleta multo longioribus, tubo floralis basi valde setifero.

CEREUS *serpentinus*. "Lag. *Annal. Cienc. Nat.* 1801. p. 261."
De Cand. *Diss. Cact.* t. 12.

CACTUS *serpentinus*. Wild. *Enum. Suppl.* 31. Link et Otto, *Ik. Pict.* t. 91.



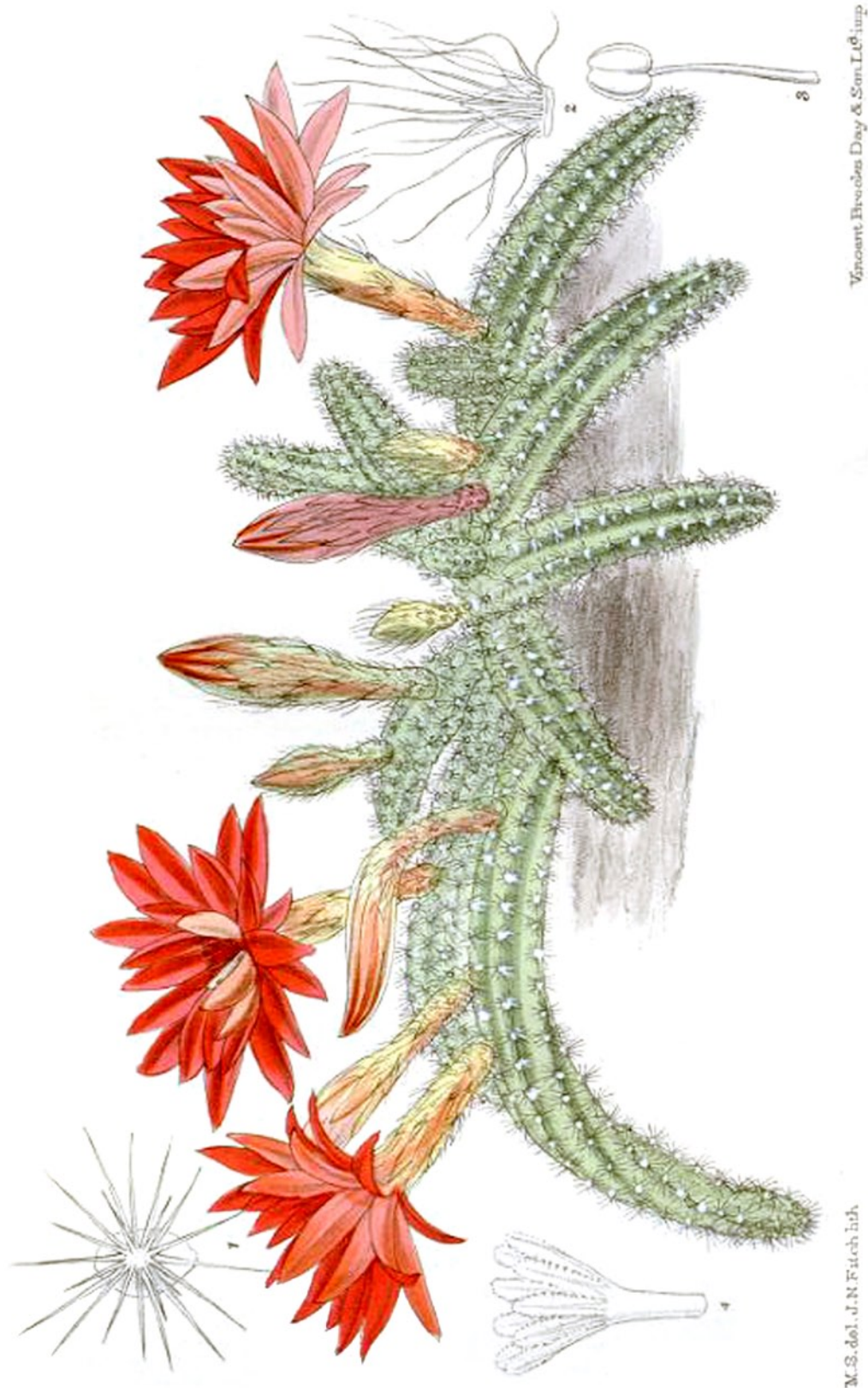
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For the opportunity of figuring this fine CEREUS, I am indebted to Mr. MACKAY of the Norwich Nursery, in whose extensive collection of succulent plants (formerly Mr. HITCHIN'S) it produced flowers, from which the accompanying drawing was made. Mr. MACKAY observes, that it is a night-blooming species, that the blossom remains expanded about

about the same time as the *C. grandiflorus* (Tab. 3381) is strongly scented, and that the plant is more hardy than that species, but less so than the ECHINOCACTI.

DESCR. *Stem* long, creeping unless supported, branched, jointed; the joints long, cylindrical, an inch or an inch and a half in diameter, and marked with from eleven to twelve angles, on which are numerous fascicled, spinous setæ, intermixed with short tufts of a woolly substance. The flower is large, handsome, fragrant, terminating a joint of which it seems to be a continuation, there being no well-defined mark between the termination of the one and the commencement of the other. *Tube* three to four inches long, clothed with several linear, green, strongly ciliated scales. *Petals* numerous, linear, acute, spreading, of a pale whitish flesh colour within, reddish or brick colour without. *Stamens* much protruded, very numerous, forming a deep cup: *filaments* white: *anthers* yellow. *Stigma* of four to five rays, white.



TAB. 8426.

CEREUS SILVESTRII.

Argentine Republic.

CACTACEAE. Tribe ECHINOCACTEAE.

CEREUS, Linn.; Benth. et Hook. f. *Gen. Plant.* vol. i. p. 849.

Cereus Silvestrii, Speg. in *Anales del Museo Nacional de Buenos Aires*, vol. xi. p. 483; affinis *C. procumbenti*, Engelm., sed caulibus gracilioribus, pulvillis confertioribus, spinis numerosioribus et gracilioribus, floribus minoribus et miniatis differt.

Herba; caules prostrati vel centrales adscendentes, 3–10 cm. longi, 9–14 mm. crassi, 8-angulati, pallide virides; pulvilli 1.5–2.5 mm. sejuncti; aculei 16–20, setacei, 1.5–2 mm. longi, albi. *Flores* laterales, erecti, infundibuliformes; tubus 2.5–3 cm. longus, rectus, apice 9–10 mm. diametro, rufescens, squamis ovatis acutis perparvis longe pilosis laxè obtectus; segmenta 3–4-seriata, patula, 1.3–2 cm. longa, 4 mm. lata, lanceolata, acuta, pulchre miniata. *Stamina* inclusa; filamenta rubra; antherae ochroleucae. *Stylus* ochroleucus, stigmatibus 8–9.-N. E. BROWN.

The very beautiful *Cereus* which forms the subject of our plate is a native of Argentina, where it was originally discovered in the provinces of Tucuman and Salta by Dr. Philipp Silvester, in whose honour it was named. A member of the group of forms to which belongs *C. procumbens*, Engelm., figured at t. 7205 of this work, it is readily distinguished from that species by its more slender stems, its more closely approximate cushions of spines, the spines themselves being smaller; it differs also in having smaller flowers which are very unlike those of *C. pubescens* in colour. The plant which supplied the material for our illustration was purchased in the spring of 1911 for the Kew collection from Messrs. Haage & Schmidt, of Erfurt. In the catalogue of this firm a figure of the plant is given; that figure represents it as a compact many-stemmed herb of semi-dependent habit growing in a hanging pot. At Kew it flowered freely in May, 1911, in the house devoted to succulent plants. The elegance and the bright orange-scarlet colour of its flowers, exceptional in the genus, fully

MARCH, 1912.

entitle it to horticultural favour. The cultural requirements of *C. Silvestrii* are a loamy soil and abundant sunshine; a fair allowance of water should be supplied in summer, with little or none at all in winter.

DESCRIPTION.—*Herb*; stems succulent, prostrate or the central ascending, 1¼–4 in. long, 4–7 lin. thick, 8-angled, pale-green; spine-cushions very closely set; spines 16–20 to a cushion, setaceous, 1 lin. long or shorter, white. *Flowers* showy, lateral, erect, infundibuliform; tube 1-1¼ in. long, straight, 4–5 lin. wide at the top, reddish, loosely clothed with very small, ovate acute, pilose scales; segments 3–4-seriate, spreading, ½-¾ in. long, 2 lin. wide, lanceolate, acute, brilliant orange scarlet. *Stamens* included; filaments red; anthers pale yellow. *Style* pale yellow, stigmas 8–9.

Fig. 1, a cushion of spines, from the stem; 2, scale with hairs, from the flower-tube; 3, stamen; 4, stigmas:—all enlarged.

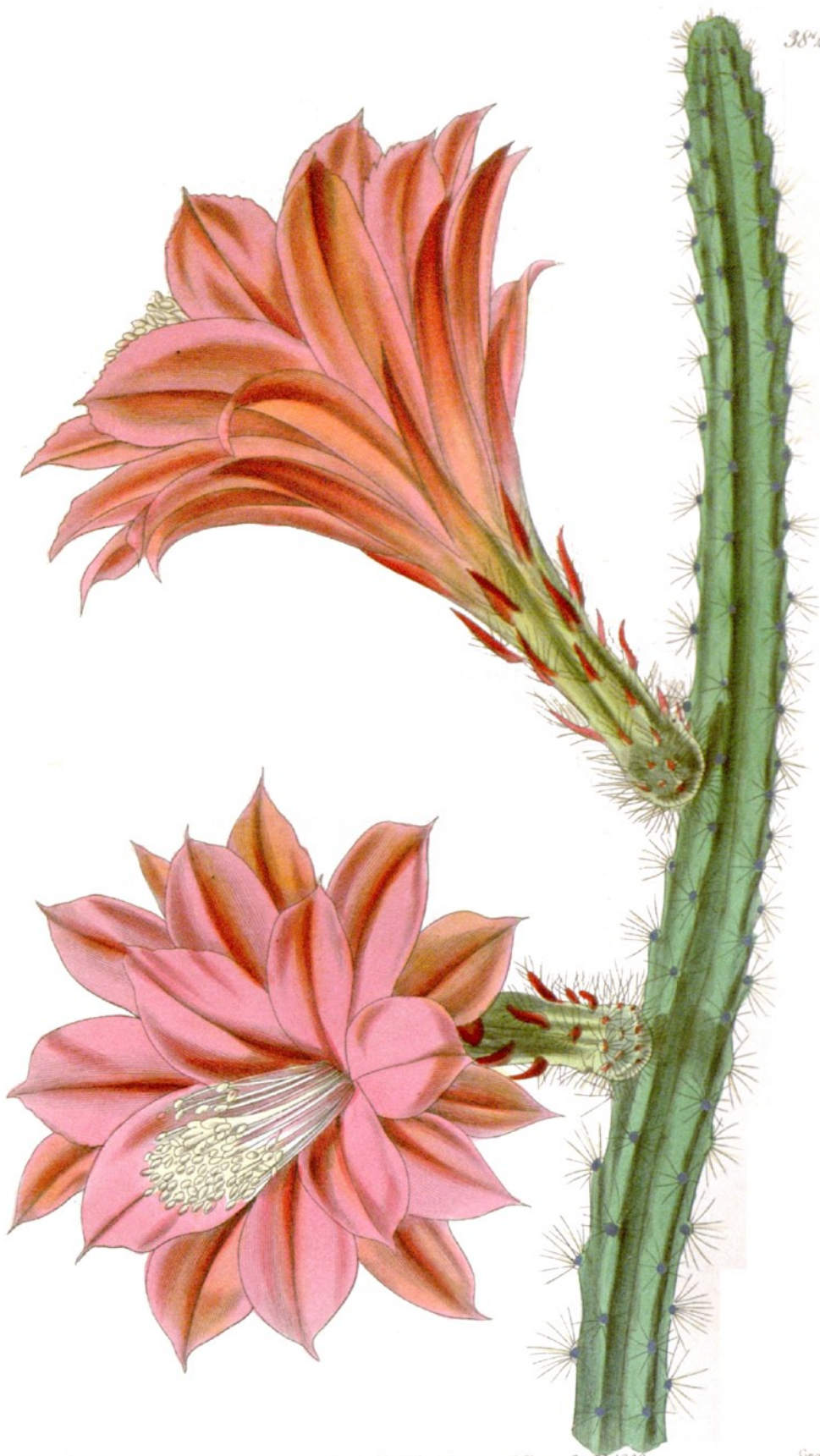
CÉREUS SPECIOSISSIMUS; Hybridus. SPLENDID
CEREUS; Hybrid *var.*

The CRIMSON CREEPING CEREUS, garden variety. *Lindl. Bot. Reg. t. 1565.*

CEREUS Smithii. "*Hort. Angl.*"—*Pfeiff. Enum. Cact. p. 111.*

CEREUS Mallisoni. *Hort.*

Although this beautiful CEREUS is distinctly stated by Dr. LINDLEY to be a hybrid production, raised by Mr. MALLISON, gardener to Sir SAMUEL SCOTT, from seed of CEREUS *speciosissimus*, fertilized by *C. flagelliformis*, and although this circumstance is quoted by Dr. PFEIFFER, yet this author raises it to the rank of a species, and defines it as "*C. Smithii*; suberectus ramosus 6-angularis viridis, ramis junioribus purpureis sinubus latis angulatis, costis verticalibus repandis, areolis subremotis convexis, aculeis e tomento brevissimo albido centralibus 5—6 divergentibus rigidis fuscescentibus, exterioribus setaceis flavis deorsum spectantibus." It is a ready flowerer, and a great ornament to the Cactus-house.



TAB. 8779.

CEREUS TUNILLA.

Costa Rica.

CACTACEÆ. Tribe ECHINOCACEÆ.

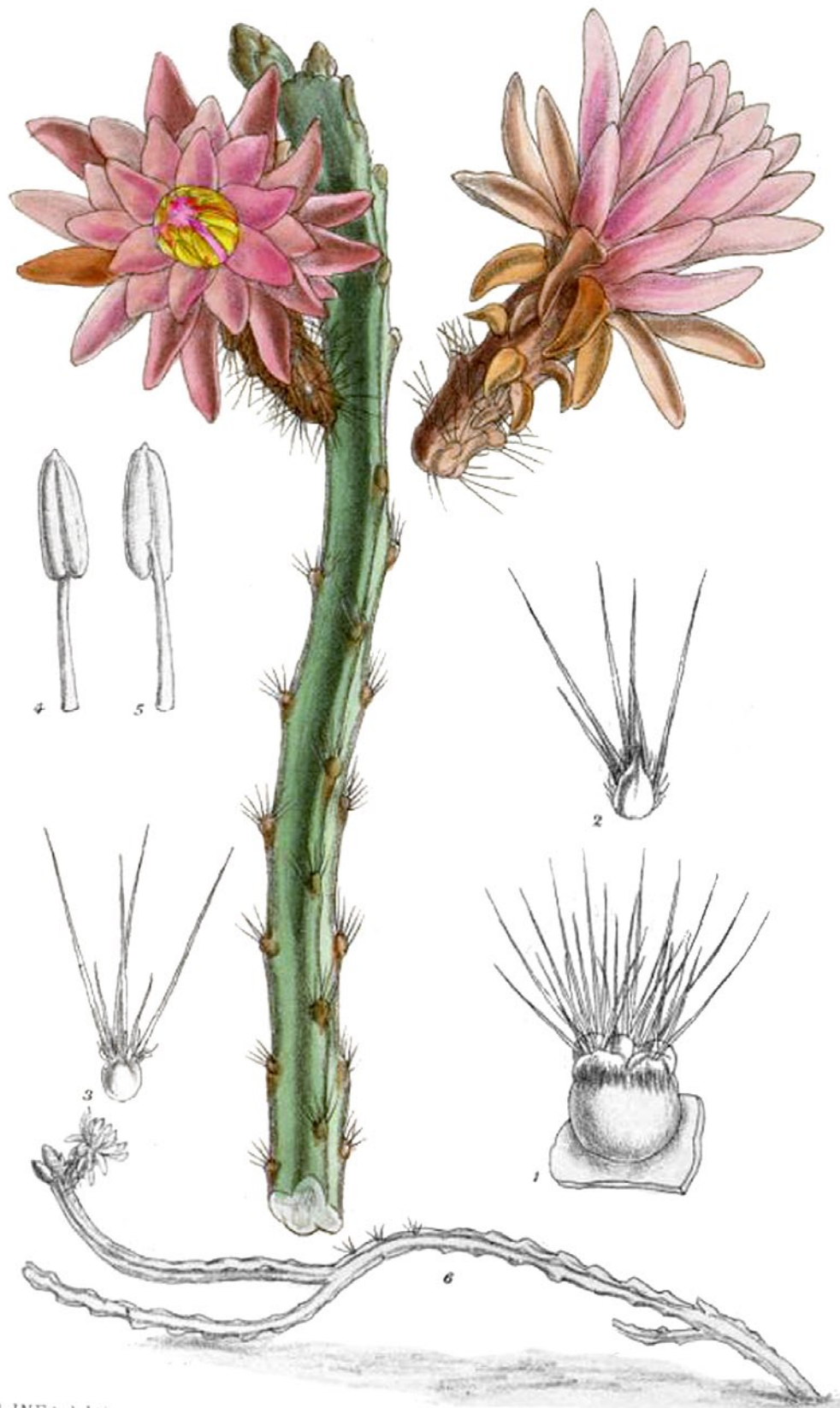
CEREUS, Haw.; Benth. et Hook. f. Gen. Plant. vol. i. p. 849.

Cereus (§ *Weberocereus*) **Tunilla**, Weber in Bull. Mus. Nat. Hist. Paris, vol. viii. p. 460 (1902); K. Schum. Gesamb. Kakt. Nachtr. p. 60; a *C. Biolleyi*, Weber, caulibus latioribus et aculeatis differt.

Fruticulus subrepens, ramosus, parce radicans. *Caulis* subgraciles, tetragoni, raro trigoni vel pentagoni, virides, angulis obtusis; pulvilli circiter 1.5 cm. sejuncti; aculei 3–5 mm. longi, divaricati, graciles vel crassiusculi. *Flores* laterales, solitarii, patentes, circiter 6 cm. longi. *Calycis* tubus circiter 1 cm. latus, basi copiose setosus; lobi oblongi, subobtusius, patentes, 2–2.5 cm. longi, pallide brunnei; squamæ quam calycis lobi breviores, acutæ, reflexæ. *Petala* elliptico-oblonga, obtusa, subpatentia, numerosa, lilacino-rosea. *Stamina* numerosa, inclusa; antheræ oblongæ, flavæ. *Stylus* inclusus. *Bacca* elongata, setoso-spinosa, flava, edulis.—*Weberocereus Tunilla*, Britton & Rose in U.S. Dept. Agric. Contrib. Nat. Hist. vol. xii. p. 431. *Cereus Gonzalezii*, Weber in Bull. Mus. Nat. Hist. Paris, vol. viii. p. 460; K. Schum. Gesamb. Kakt. Nachtr. p. 60.—R. A. ROLFE.

The attractive species now described is a native of Costa Rica. It was presented to the Kew collection in 1913 by Mr. C. H. Lankester. Since its arrival it has thriven well in the Cactus House at Kew. It produced flowers for the first time in October, 1917, when the accompanying figure was prepared. The study of species of the Cactus family presents several difficulties. Owing to the trouble experienced in preserving them satisfactorily they are, as a rule, but imperfectly represented in herbaria. Their determination from descriptions unaccompanied by drawings or photographs is often somewhat uncertain. Even where there are ample material and adequately illustrated descriptions, students of the family often are beset with doubts as regards the delimitation. Not only of the species themselves, but also of the genus to which they should be referred. In the present instance all the difficulties alluded to have been encountered.

OCTOBER-DECEMBER, 1918.



There is no specimen in the herbarium at Kew with which our plant may be exactly matched. Although Mr. Lankester has not supplied any note as to the local name of this plant, we believe it to be that known in Costa Rica as the Tunilla, which is stated to bear an elongated, spinose edible fruit and fragrant flowers, and has been described by Dr. Weber as *Cereus Tunilla*. At all events the plant figured accords well with Weber's account of the Tunilla and still better, perhaps, with the description given by the same author of *Cereus Gonzalezii*, a closely allied one subsequently regarded by Professor Schumann as merely a form of the Tunilla. This verdict of Schumann has been accepted by Dr. Britton and Dr. Rose, though these authors have deviated from both Weber and Schumann in that they regard the Tunilla as the type of a distinct genus on which they have bestowed the name *Weberocereus*. Whether our plant really be the Tunilla or not, it accords so well in essentials with *Cereus* that we have felt it desirable to retain it in that genus. The original type of *Cereus Tunilla* was found growing on an oak in the village of Tablon near Cartago, at a little over 6,000 feet above sea-level; that of *C. Gonzalezii* was collected at Pacayo, at a similar elevation. If, as we believe, the plant figured be *Cereus Tunilla*, the present is not the first occasion of its introduction to European collections; a young plant, grafted upon the Mexican *Cereus nycticalus*, Link, is reported to have blossomed at Paris in October, 1901.

DESCRIPTION.—*Shrub* of small size, with branched more or less creeping stems, emitting a few aerial roots. *Shoots* rather slender, green, usually 4-angled, rarely 3- or 5-angled, angles blunt; spine-cushions about $\frac{2}{3}$ in. apart; spines $\frac{1}{2}$ – $\frac{3}{4}$ in. long, divaricate, slender to rather stout. *Flowers* lateral, solitary, spreading, about $2\frac{1}{4}$ in. long. *Calyx* brownish; tube about $\frac{1}{2}$ in. wide, copiously setose near the base; lobes oblong, rather blunt, spreading, $\frac{3}{4}$ –1 in. long; scales shorter than the calyx-lobes, acute, reflexed. *Petals* elliptic-oblong, blunt, somewhat spreading, numerous, rose-lilac. *Stamens* many, included; anthers oblong, yellow. *Style* included. *Fruit* elongated, setosely spinescent, yellow, edible.

TAB. 8779.—Fig. 1, pulvinus with spines; 2 and 3, spines; 4 and 5, stamens:—*all enlarged*.

CEREUS TWEEDIEI.

Mr. Tweedie's Golden-flowered Cereus.

Nat. Ord. CACTAÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 4417.)

CEREUS Tweediei; erectus cylindræus glaucus polygonus costis obtusis æqualibus (non tuberculatis), areolis copiosis ovalibus fusco-lanatis, spinis numerosis inæqualibus 4–5 validioribus albis fusco-variegatis quorum 3–4 erecto-patentibus, unico cum reliquis minoribus albis omnibus deflexis, floribus numerosis lateralibus aurantiacis, tubi calycini elongati curvati colorati squamis remotis inferioribus ciliatis, fauce obliqua, petalis brevissimis vix calycem æquantibus, staminibus inæqualibus superioribus longioribus exsertis.

One of the prettiest of the *Cereus* group of *Cactææ*, of a peculiarly glaucous tint, bearing in the latter end of summer, when little more than a foot high, copious, rather large, and very handsome flowers, elegant in shape and bright in colour. We are indebted for the possession of our largest and flowering plant at Kew, to Messrs. Lee, of the Hammersmith Nursery, but we received seeds from Buenos Ayres through Mr. Tweedie. It flowered for the first time in September 1849. I can find no species described that at all corresponds with it.

DESCR. Our tallest plants are about a foot to a foot and a half high, and an inch in diameter, of a very glaucous green hue, simple, but increasing readily by offsets at the base. The shape is cylindrical, very slightly tapering upwards, numbered with many, about sixteen, moderately deep furrows, perfectly straight, the ridges obtuse and even (not tubercled or mammillate). *Areolæ* on the ridges approximate, oval, woolly, the wool brown. *Spines* many from each areola, of which four or five are stouter than the rest, white, blotched with brown, and of these stout ones three or four (half to three-quarters of an inch long) are erecto-patent; a solitary stout one generally together with the other lesser ones, which are white, all point downwards. *Flowers*, of a rich orange-crimson, are numerous from the side of the stem, three inches

MARCH 1ST, 1850.

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long, curved upwards, the mouth oblique. *Calyx-tube* funnel-shaped, the scales remote, subulate, appressed, lower ones ciliated with white hairs. *Petals* small, scarcely longer than the teeth of the calyx, deep yellow, acute. *Stamens* lying against the upper side of the tube, and there much longer than the flower: lower ones scarcely protruded. *Anthers* deep purple. *W. J. H.*

CULT. A pretty species of *Cereus*, of an erect, stiff habit, and apparently not of tall stature, having produced its flowers when less than two feet high. It grows freely in a soil composed of light loam, leaf-mould, and sand, care being taken that it be not retentive of water. The pot should be well drained, and the mould must never continue long saturated. The latter precaution is especially to be observed in winter, for during that season the plant requires little or no water. We are not acquainted with its native locality, but judging from the climate of Buenos Ayres, we may suppose that it endures great extremes of temperature, and often long droughts; the thermometer in summer sometimes rising to 94°, and in winter falling so low as 36°; the mean temperature of summer and winter being respectively 72° and 54°. With us, a night temperature averaging 50° during the winter suits it; but in severe weather it is not advisable to maintain that heat, for the plant does not suffer even when the thermometer is 10 to 15 degrees lower. When this is the case, however, it is desirable that a corresponding rise be maintained during the day. As the warmth of spring increases, the plant should be moderately supplied with water. In summer it should be allowed to receive the full power of the sun, with occasional syringeing over head: this operation must be performed after the heat of the day has declined, or early in the morning. J. S.

Fig. 1. Areola and cluster of spines:—*magnified*.

[In our last number, under *Cælogyne Wallachii* (TAB. 4496.), we spoke, from memory only, of the extreme beauty of that plant at Chatsworth, Mr. Paxton has been so obliging as to inform us, it consisted of “eight pseudo-bulbs, which bore twenty-eight flowers: three of the pseudo-bulbs were large, three of a medium size, and two small. The three large ones each produced three flower-stems, and two out of three on each bulb were biflorous. Of the three medium-sized ones, one had four flower-stems, and the other two had three stems each, all single-flowered. One of the two small bulbs bore two flowers on the stems, and the other bulb was single-flowered.”]

TAB. 7688.

CEREUS VIRIDIFLORUS.

Native of New Mexico and Colorado.

Nat. Ord. CACTEÆ.—Tribe ECHINOCACTEÆ.

Genus CEREUS, Haw.; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 849.)

CEREUS (Echinocereus) *viridiflorus*; subglobosus ovoideus oblongus v. demum cylindraceus, parce ramosus, ad 13-salcatus, læte viridis, areolis ovato-lanceolatis oblongisve, aculeis 12–18 arcte radiantibus cum superioribus 2–6 setaceis rubris albis variegatisve, lateralibus caeteris longioribus, centralibus 1–2 robustis rariis 0, floribus ad 1½ poll. diam. apicem versus caulis lateralibus e flavo virescentibus, calycis tubo brevi aculeato, petalis apice bilobis, baccis parvis ellipsoideis spinulosis, seminibus tuberculatis.

C. viridiflorus, Engelm. in Gray *Pl. Fendl. in Mem. Am. Acad.* vol. iv. (1849) p. 50; *Syn. Cact. U.S. in Proc. Am. Acad.* vol. iii. (1856) p. 278, et *Addend. in Trans. Acad. St. Louis*, vol. ii. p. 199; *Cact. Whipple Exped.* p. 32; *Cat. Mex. Bound.* p. 28, t. xxxvi.; *Cact. in King's Expl. Rep.* vol. v. p. 118; in *Simpson's Rep.* 440. *Bigelow, Pacif. Rail. Rep.* vol. iv. pp. 32, 36. *S. Wats. Pl. Wheeler*, p. 9. *Porter & Coulter Fl. Colorad.* p. 48. *Coulter Man. Rocky Mt. Bot.* p. 110. *Salm. Cact. Hort. Dyck.* p. 192. *Lab. Monogr. Cact.* p. 319.—*Bot. Works Engelm.* pp. 124, 136, 158, 224, 227, 231.

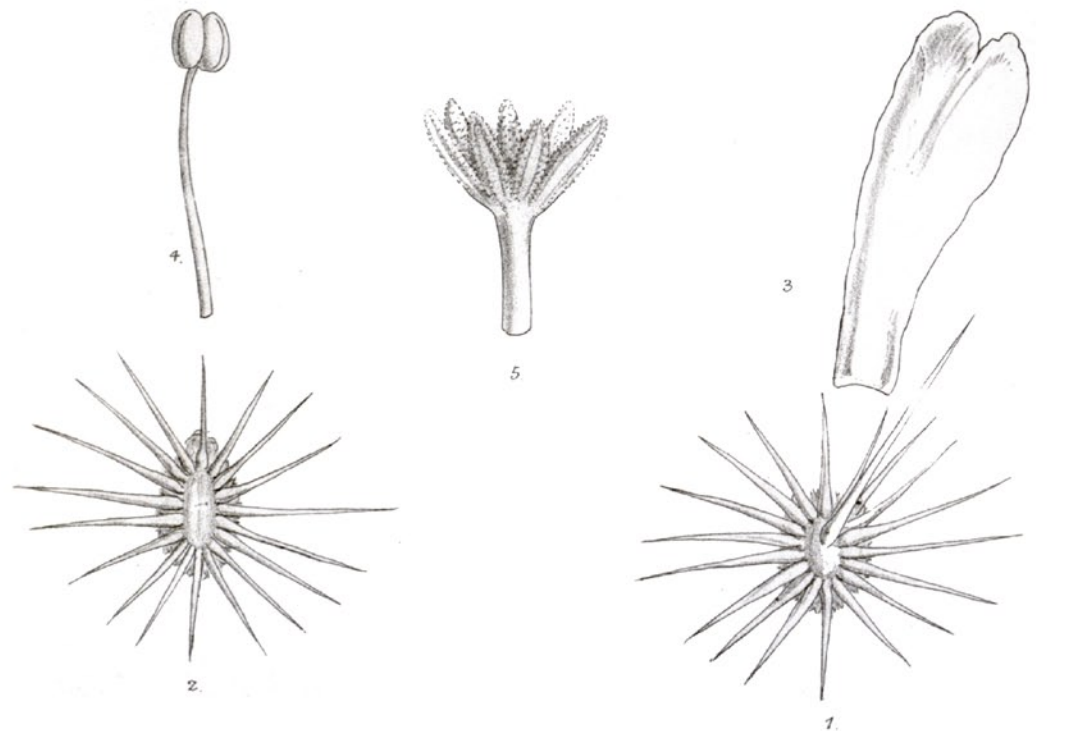
Echinocereus viridiflorus, Engelm. in *Wislitz. Tour N. Mexic.* p. 91. *Först. Handb. Cact.* Ed. 2, p. 811. *Schum. Gesamtbeschr. Kakt.* p. 267.

E. Labouretianus, Lem. *Cact.* p. 57.

E. Laboureti, Först. *l.c.*

Cereus viridiflorus is an interesting plant, as being the most northern representative of the vast genus to which it belongs, and which numbers upwards of 300 species. It is a native of Rocky Mountains of N. America, and its subsidiary chains, from the upper Platte River in Wyoming (about lat. 43° N.), south to the Rio Grande del Norte in New Mexico (about lat. 35° N.), Colorado being its headquarters. It would be interesting to know to what elevation it is found, but of this I find no record. Plants of it were received at the Royal Gardens, Kew, in 1897, along with other *Cacti*, from Mr. D. M. Andrews, Nurseryman, of Boulder, Colorado; they have proved to be so far hardy as to require the protection of a screen only in very cold weather. They flower in July.

Descr.—Plant subglobose or ovoid, or elongating into
DECEMBER 1ST. 1899.



oblong or cylindric, two to eight inches high, by one and a half to two in diameter, simple or sparingly branched; furrows about thirteen, separated by obtusely triangular ribs, one-third to one-half of an inch broad at the base. *Areolæ* of spines ovate-lanceolate or oblong, about their own length apart. *Spines* twelve to eighteen, with often a few much shorter and more slender at the apex of the areole, pectinately spreading, about a sixth of an inch long, with usually one (rarely two) stouter, longer, central, erect spines; colour of spines very variable, from red-brown to white, or variegated, especially the central. *Flowers* laterally produced on the ribs above the middle of the plant, an inch and a half in diameter. *Calyx-tube* short, spinose, green. *Sepals* and *petals* narrowly cuneiformly oblong, yellow, with a faint pink or greenish tinge, tip two-lobed. *Anthers* yellow. *Stigmas* green. Fruit small, ellipsoid, spinulose. *Seeds* tubercled.—*J. D. H.*

Figs. 1 and 2, *Areolæ* with spines; 3, petal; 4, stamen:—*All enlarged.*

ECHINOCÁCTUS CENTETÉRIUS. VARIEGATED-
FLOWERED ECHINOCACTUS.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

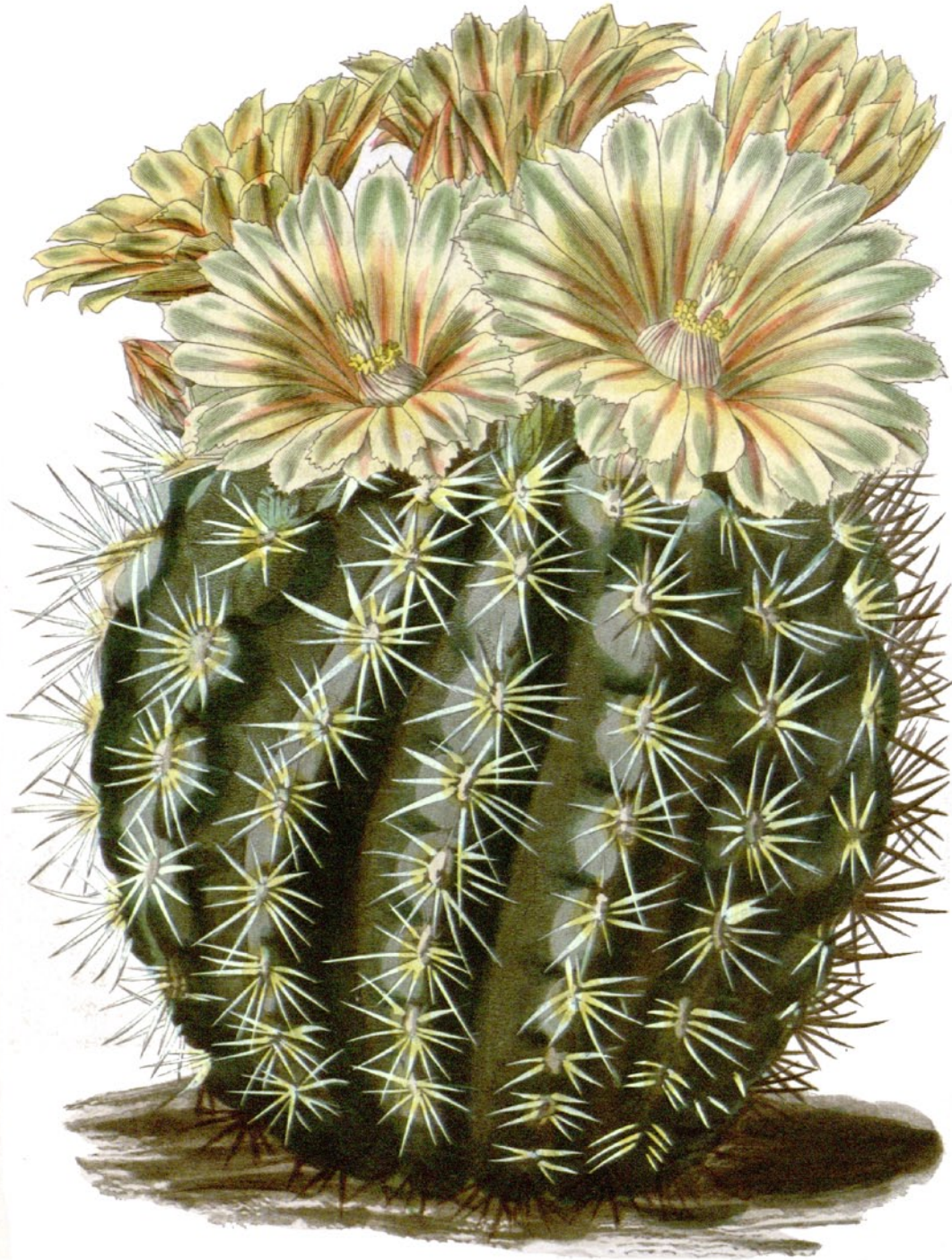
Sepala numerosa, imbricata, basi ovario adnata; in tubum brevissimum concreta, exteriora involucriformia, intima petaliformia. *Stamina* numerosa, calyci affixa, inaqualia, intima brevissima, filiformia, antheris oblongis. *Stylus* cylindricus, subfistulosus, apice multifidus. *Bacca* sepalorum reliquiis subsquamata, rarissime lævis. *Cotyledones* parvula.—Frutices simplicissimi carnosii, ovati aut globosi, melocactoidei aut mammillariæformes, aphylli, costati aut tuberculati, costis tuberculis confluentibus quasi formatis, dorso aculeorum fasciculos gerentibus. Flores e fasciculis aculeorum ad apicem costarum orti, similes floribus Cerei, sed tubo vix supra receptaculum elongato. Pfeiff.

Specific Character and Synonyms.

ECHINOCACTUS *centetarius*; subglobosus obscure viridis tuberculatus apice vix umbilicatus, tuberculis in series 15 subverticales dispositis confluentibus oblongis infra areolam acuato-prominentibus (gibbosis), areolis ovalibus cano-tomentosis, aculeis exterioribus 10—12 gracilibus rectiusculis bifarie patentibus, centralibus 4 decussatis validioribus nigrescentibus tandem fusco-cinereis. Pfeiff.

ECHINOCACTUS *centetarius*. "Lehm."—Pfeiff. *Enum. Cact.* p. 65.

This has been for some time cultivated in the Royal Botanic Gardens of Kew, under the name here adopted. If it



it be the same with the *E. centeterius* * of LEHMANN and PFEIFFER, the plant from which the latter author's description was made is but young, for it is mentioned as two inches and three quarters high, and three inches broad, with flowers an inch and a half in diameter. In other respects, the two plants appear to be the same. The best of descriptions, however, give but an imperfect idea of the distinguishing marks in this extensive and curious family. In the specimen before us, the height is above six inches, and the breadth somewhat less. The *flowers* are copious, five to seven or eight from the summit of the plant: each is nearly three inches across; the *petals* are deep straw colour, with a reddish streak down the centre. The *filaments* are reddish; the *anthers* yellow. *Stigmas* about eight- or nine-rayed, yellow, tinged with red, protruded beyond the stamens.

It flowers copiously in July.

* *κεντετηρις*, *id quo pungere possumus*:—so called, I presume, from the copious spines.

ECHINOCACTUS CHLOROPHTHALMUS.

Green-eyed Echinocactus.

Nat. Ord. CACTEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4124.)

ECHINOCACTUS *chlorophthalmus*; glomeratus subglobosus viridis profunde subdecem-sulcatis, tuberculis conico-hemisphæricis vix angulatis sæpe confluentibus, areolis prominentibus lanatis, aculeis 10–12 acicularibus radiantibus rectis centrali validiore junioribus basi rubris, calycis tubo cylindræo tuberculoso-squamatis, squamis v, tuberculis imbricatis apice lanatis aculeatisque summis petaloideis, petalis purpureis basi pallidis, stigmatis radiis viridibus.

Whatever reflections may be made on the uncouth and grotesque forms of the majority of individuals in the *Cactus* family, it must be conceded of the *Echinocactus* group, especially, that few plants can excel them in size and beauty of the blossoms. In the present instance a single flower equals or exceeds the height as well as the breadth of the entire plant; while the glossy purple of the starry petals, pale at their base, with the yellow mass of dense anthers, and the almost emerald green of the eye-like stigma, cannot fail to call forth admiration. It inhabits Real del Monte, Mexico, it blooms in the summer months, and will rank next to *E. hexædrophorus* (*vide supra*, Tab. 4311).

DESCR. Nearly globose, about the size of a small orange, glaucous-green, clustered, with about ten or twelve deep furrows, the intermediate ridges divided into six to eight somewhat hemispherical, but very irregular *mammæ*, at the top of which is a woolly *areole*, bearing seven to ten slender acicular spines, half to three-quarters of an inch long, spreading; but the central one is longer and stronger than the rest—their colour is pale brown, red at the base in the younger ones. *Flowers* large, solitary, from near the summit of the plant. *Calyx* obovato-cylindrical, imbricated with numerous ovate, mammillary scales, each terminated by a woolly areole and a tuft of small spines,

MAY 1ST, 1848.



except a few of the uppermost which gradually become petaloid. *Petals* very numerous, spatulate, rather acute and serrated at the apex, glossy purple, white at the base. *Stamens* very numerous, compact; *anthers* small, yellow. *Style* thick, white, a little longer than the stamens. *Stigma* of several bright green, erecto-patent *rays*.

4326.

TAB. 4326.

ECHINOCACTUS CINNABARINUS.

Cinnabar-flowered Echinocactus.

Nat. Ord. CACTACEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 4124.)

ECHINOCACTUS *cinnabarinus*; atro-viridis globoso-depressus centro umbilicatus, tuberculis spiraliter dispositis basi tetragonis dorso verticaliter profunde carinatis, areolis parvis tomentosus ad summum apicem tuberculi sitis, aculeis rigidis mediocribus gracili-subulatis exterioribus radiatis subuni-formibus, centrali erecta dimidio longiore, floribus solitariis sparsis, calycis viridis tubo lanato sepalis inferioribus minutis acutis superioribus spathu-latis, petalis numerosis cinnabarinis.

A neat species in regard to the form and arrangement of its tubercles, and very striking when in flower, from the numerous rich cinnabar-coloured petals, which spread to a diameter of three inches. The species is among the many rare ones from Bolivia, purchased for the Royal Gardens from Mr. Bridges. It flowers in a cool greenhouse in July.

DESCR. Our specimens grow solitary and are globose, but depressed and umbilicated in the centre, six to seven inches in diameter and three or four inches in height. The surface is formed of copious dark green *mamillæ* or *tubercles*, closely packed and arranged in spiral oblique lines; they are four-sided at their base, and dilated at the back into a deep, vertical, rather short keel, on the top of which the *areola* is situated; this *areola* is small, woolly, and bears a cluster of about twelve, pale brown, narrow, subulate or acicular, but rather strong *aculei*: those of the circumference are nearly equal in length, and form a circle, $\frac{1}{2}$ — $\frac{3}{4}$ of an inch long: the central one is longer and stronger than the rest, all slightly curved. *Flowers* scattered, solitary, large in proportion to the size of the plants. *Calyx* green; the *tube* short, woolly, the *folioles*, or *sepals*, of the lower portion, small, short, acute, the superior ones large, spathulate, and resembling the petals except in colour, and seeming gradually to pass into petals. *Petals* numerous, spathulate, obtuse,

OCTOBER 1ST, 1847.

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spreading, of a rich cinnabar colour. *Filaments* red. *Anthers* yellow. *Rays* of the *stigma* (in the few flowers I have seen) erect and approximate.



Fig. 1. Keel of a tubercle with a cluster of aculei:—*magnified*.



(4115)

ECHINOCÁCTUS CONCÍNNUUS. NEAT

ECHINOCACTUS.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

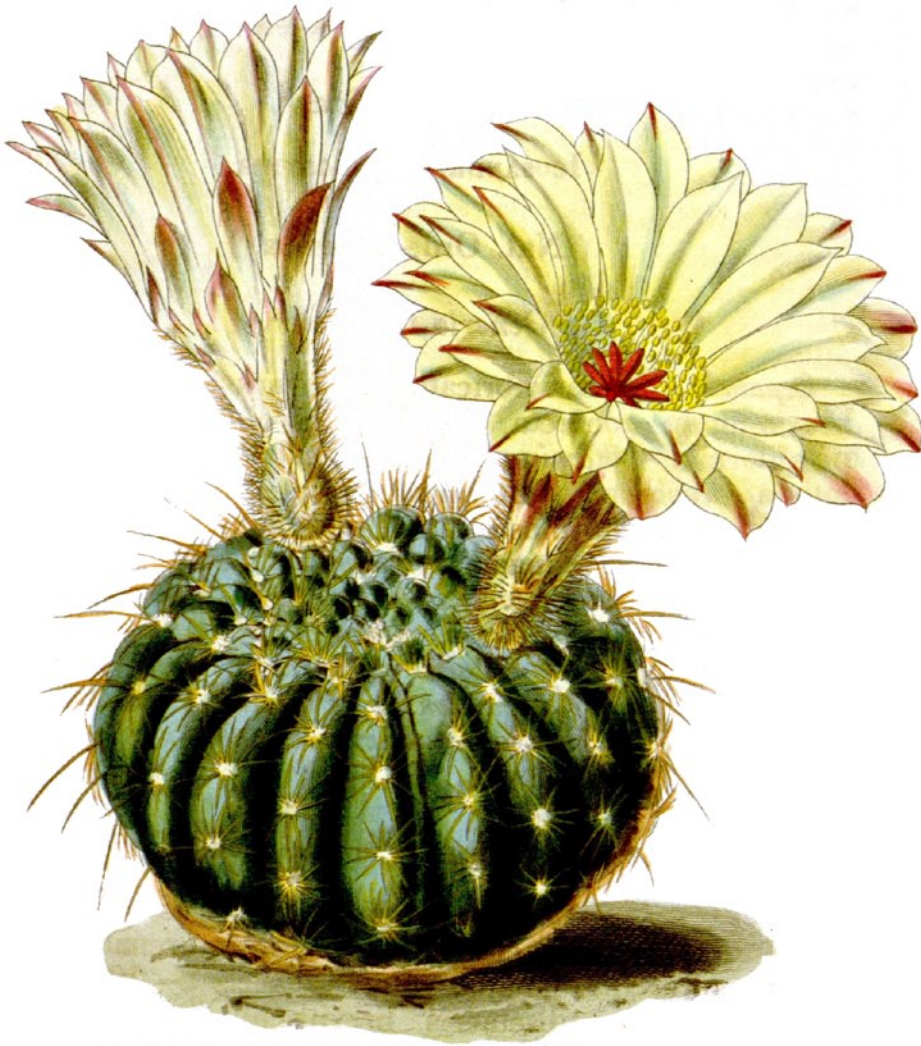
Sepala numerosa imbricata, basi ovario adnata, in tubum brevissimum concreta, exteriora involucriformia, intima petaliformia. *Stamina* numerosa, calyci affixa, inæqualia, intima brevissima filiformia, antheris oblongis. *Stylus* cylindricus, subfistulosus, apice multifidus. *Bacca* sepalorum reliquis subsquamata, rarissime lævis. *Cotyledones* parvulæ.—Frutices simplicissimi carnosi ovati aut globosi, melocactoides aut mammillariformes, aphylli, costati aut tuberculati, costis tuberculis confluentibus quasi formatis, dorso aculeorum fasciculos gerentibus. Cephalium seu spadix nullus. Flores e fasciculos aculeorum ad apicem costarum orti. Pfeiff.

Specific Character and Synonyms.

ECHINOCACTUS *concinus*; depresso-globosus glaucescens sub-10-costatus, costis obtusis sinuato-crenatis, areolis remotiusculis lanatis, spinis setaceis 8—10 stellatim patentibus subsetaceis breviusculis unico longiore validiore paululum decurvis.

ECHINOCACTUS *concinus*. *Hortul.*

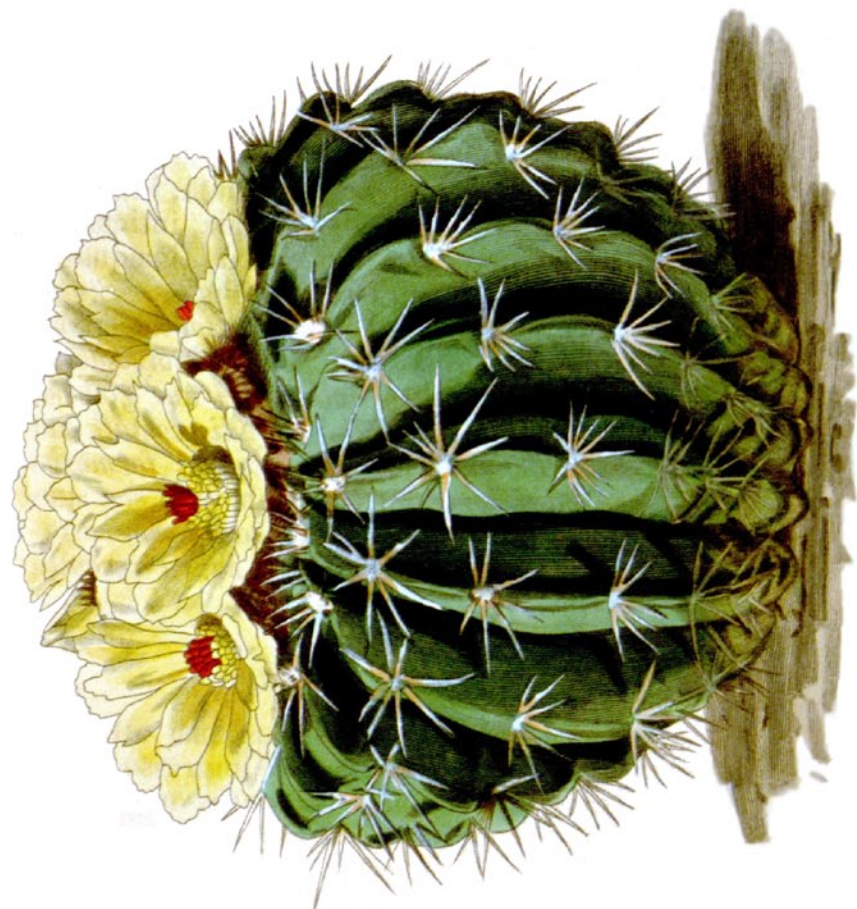
ECHINOCACTUS *orthocanthus*. "*Link et Otto.*"—Pfeiff. *Enum. Cact.* p. 53 ?



This, so far as I can find, has only a name in gardens and in catalogues. It does not appear in PFEIFFER'S useful "Enumeratio," unless it be the *E. orthocanthus* above quoted, with the short description of which it seems to accord,

accord, except in not having the longer spine so stout and so straight, as appears to be the case with that species. Nothing short of good figures can illustrate the various forms of the species in this intricate family. We have cultivated the present individual for some years in the collection at Kew, where it flowers in March and April.

DESCR. The *plant* is small, two inches high, three, or three and a-half inches in diameter, globose, but remarkably depressed at the top, and even convex there, and crowded with mammillæ, with their woolly and spinous areolæ: the sides deeply and regularly costate, the sinuses acute; the costæ prominent, very obtuse, sinuato-crenate, about twenty in number. *Areolæ* woolly, sending out, in a stellated direction, eight to ten, slender, acicular or setiform, spreading *spines*, with one longer and stronger, but still slender, which is curved downwards. *Flowers* one or two, generally from the border of the depressed vertex or summit, large, handsome: the numerous spreading *petals* yellow, with a dark-red streak down the centre. The lower scales or calycine segments are villous.



Pub. by S. Curtis. Glasenwood. Essex. 1841.

W. Fitch del.

(3906)

ECHINOCÁCTUS CORYNÓDES. MANY-FLOW- ERED ECHINOCACTUS.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

Sepala numerosa imbricata, basi ovario adnata, in tubum brevissimum concreta, exteriora involucriformia, intima petaliformia. *Stamina* numerosa, calyci affixa, inæqualia, intima brevissima, filiformia, antheris oblongis. *Stylus* cylindricus, subfistulosus, apice multifidus. *Bacca* sepalorum reliquiis subsquamata, rarissime lævis. *Cotyledones* parvulæ.—Frutices simplicissimi carnosi, ovati aut globosi, melocactoidcei aut mammillariæformes, aphylli, costati aut tuberculati, costis tuberculis confluentibus quasi formati, dorso aculeorum fasciculos gerentibus. Cephalium seu spadix nullus. Flores e fasciculis aculeorum ad apicem costarum orti, similis floribus Cerei, sed tubo vix supra receptaculum elongato.—Pfeiff.

Specific Character and Synonyms.

ECHINOCACTUS *corynodes*; depresso-globosus basi attenuatus obscure viridis 16-angularis, vertice impresso, sinubus angustis acutis, costis acuatis crenatis, areolis immersis junioribus albis villosissimis tandem nudis, aculeis exterioribus 9 patentibus nascentibus rubris dein fuscescentibus centrali 1 erecto subulato brunneo reliquos non superante omnibus rectis rigidis. Pfeiff.

ECHINOCACTUS *corynodes*. "H. Berol."—Pfeiff. *Enum. Cact.* p. 55.

"E. rosaceus, Sellowianus." Hort.

From the rich collection of CACTEÆ in the Royal Botanic Garden of Kew, where it flowers during the summer months,

months, when its copious bright sulphur-coloured flowers with the red eye (the cluster of stigmas) give it a beautiful and showy character.

PFEIFFER, who seems alone to have described this species, remarks that the young and adult plants are very different; the former being of a deeper green; with the areolæ crowded; the aculei longer, more rigid, and brown. The adult he describes as three to four inches in diameter, two to three high: the areolæ six to eight lines long, distant: the aculei five to six lines long.—Our *plant* is of larger dimensions than that now specified, as seen by our figure. The form is subglobose, but depressed at the top, and narrowed at the base: the colour a rather deep somewhat glaucous green. The sides are cut into about sixteen deep, vertical furrows, and as many prominent, crenated ridges. The crenatures are from half to three quarters of an inch apart, and in them is lodged a tuft of dense white wool, which is nearly obsolete in the lower crenatures. From these woolly crenatures arise the *aculei*, which are in number from seven to nine, spreading, rigid, five to six lines long, pale brown, deeper at the base, having besides a central, erecto-patent one, generally of an uniformly deep brown colour, and about equal in size to the rest. *Flowers* several from the crown of the plant, rich sulphur yellow, two inches in diameter, when fully expanded. *Tube* externally shaggy with brown wool. *Petals* in two or three rows, spathulate, crenate and almost laciniated towards the apex. *Stamens* numerous, pale yellow, crowded around the style. *Stigma* with the rays erect, bright scarlet.

Fig. 1. 2. Front and side view of an Areola, with Aculei.

TAB. 6097.

ECHINOCACTUS CUMMINGII.

Native of Bolivia.

Nat. Ord. CACTEÆ.—Tribe ECHINOCACTEÆ.

Genus ECHINOCACTUS, *Link & Otto*; (*Benth. & Hook. f. Gen. Pl.*, vol. i. p. 848).

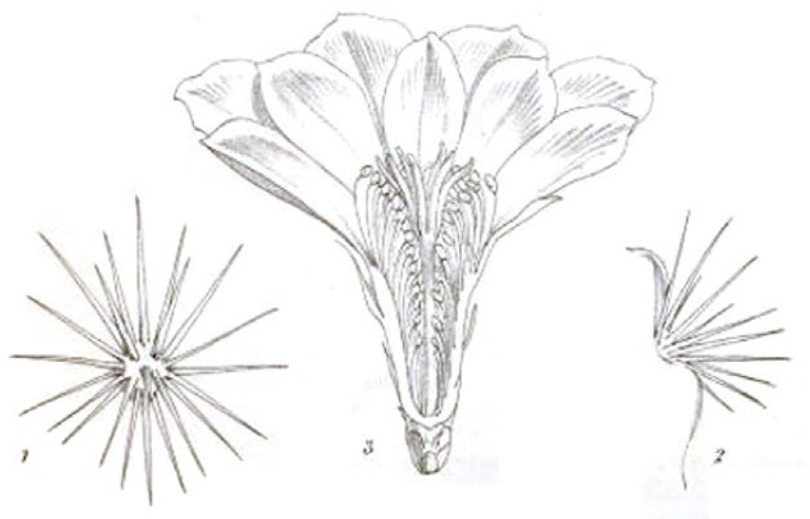
ECHINOCACTUS *Cummingii*; subglobosus, griseo-virescens, tuberculis $\frac{1}{3}$ - $\frac{1}{2}$ poll. diam. distinctis subhemisphericis spiraliter dispositis centro depressis, areolis parvis fere circularibus, demum nudis, spinis exterioribus 15–20 patentibus gracilibus strictis ad $\frac{1}{4}$ poll. longis pallide flavescentibus superioribus longioribus centralibus fortioribus, floribus 1 poll. diametro aureis, perianthii tubo infundibuliformi, laciniis ad 40 aureis extimis tubum efformantibus brevibus imbricatis apicibus sanguineis, intimis numerosis patentibus lineari-oblongis obtusis, staminibus confertis aures tubo fere immersis, antheris parvis, stylo columnari, stigmatibus 7–8 erectis cylindraceis.

ECHINOCACTUS *Cummingii*, *Salm-Dyck. Cact. Hort. Dyck. Cult.* p. 174; *Labouret Monog. Cact.*, p. 264.

A very elegant little globose Cactus, with rather large bright golden flowers, communicated to Kew by Mr. Pferfsdorff in June of last year: it is stated by Labouret and Salm-Dyck to be a native of Bolivia, and to be very rare in Europe, but one specimen according to the former author existing in France (in 1847), which was in the collection of M. Andry, of Chaillot. I give it the name under which Mr. Pferfsdorff sends it, assuming it to be correct; it agrees with Labouret's character in everything but the size of the flowers, which are described as "petites," whereas these are of considerable size in proportion to the size of the plant.

DESCR. *Stem* in our specimen two and a half inches in diameter, nearly globose, of a grey-green colour, hardly shining, contracted slightly at the base. *Tubercles* about one third of an inch in diameter, arranged in spirals, sub-hemispherical, base obtusely quadrangular, with a depression at the top in which the areole is placed. *Areole* small, nearly circular, outer spines about fifteen to twenty, strict, slender, erecto-patent, pale yellowish, the upper rather the longest,

MAY 1ST, 1874.



central two or three shorter and stouter. *Flowers* numerous, sessile. *Perianth* golden yellow, one inch in diameter, and about as long; tube funnel-shaped, clothed with lax imbricating oblong scales tipped with red (the outer segments); inner segments numerous, spreading, linear-oblong, obtuse, flat and overlapping. *Stamens* lining the whole perianth-tube, the innermost much the shortest, filaments strict slender, anthers minute, yellow. *Style* rather stout with seven to eight erect, thickly filiform stigmas.—*J. D. H.*

Fig. 1, Areole and spines; 2, apex of tubercle and spines; 3, vertical section of flower:—*all magnified.*

ECHINOCACTUS EYRIESII. SWEET-SCENTED
SPINY CACTUS.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

Sepala numerosa, imbricata, basi ovarii adnata, in tubum brevissimum concreta, exteriora involucriformia, interna petaliformia. *Stamina* numerosa. *Stylus* filiformis, apice multifidus. *Bacca* sepalorum reliquiis subsquamata. *Cotyledones* nulla?—Frutices simplicissimi, carnosi ovati aut globosi, melocactoidei, costati, aphilli, costis tuberculis confluentibus quasi formatis, dorso aculeorum fasciculos gerentibus. Cephalium seu spadix nullus. Flores e fasciculis aculeorum ad apices costarum orti, similes floribus Cerei sed tubo vix ullo donati. D C.

Specific Character and Synonyms.

ECHINOCACTUS *Eyriesii*, caule subgloboso umbilicato, costis 13 continuis aculeatis subundulatis, tuberculis lanatis spinas plures breves rigidas rectas gerentibus, flore bucciniforme curvato 6 uncias longo odoratissimo extus cinereo villosus, petalis acutissimis stellatis. *Lindl.*

ECHINOCACTUS *Eyriesii*. "Otto in Verhandl. Preuss Gart. ver. c. ic." *Lindl. Bot. Reg. t. 1707.*

The drawing of this charming ECHINOCACTUS, no less remarkable for the great size of the flower, than for its delicious fragrance, was made by Mr. HENRY CURTIS, the youngest son of the Conductor of this work, in whose choice collection, at Glazenwood, it flowered in Jan., 1835. This noble flower, like that of *CEREUS grandiflorus*, seems to



to expand only at night. It is a native of Mexico, having been introduced to the Horticultural Society, according to Dr. LINDLEY, some years ago by Sir JOHN LUBOCK.

DESCR. *Stem* subglobose, depressed, and even umbilicated at the top, about as large as a middling-sized orange, marked with several, twelve to fourteen, sharp and prominent angles, upon which are several white, rounded, woolly tubercles, mixed with several short and not very conspicuous spines. The *flower* is exceedingly large in proportion to the size of the stem, and breaks forth from one of the angles, ascending. *Tube* a span long, funnel-shaped, greyish green, woolly, and marked with numerous tufts of oblong brown hairs; within green. *Petals* numerous, lanceolate, very acuminate, white, patent, often reflexed. *Stamens* numerous, rising a little above the tube of the flower, most numerous on one side: *Anthers* yellow. *Style* scarcely reaching to the summit of the stamens. *Stigma* rayed.

TAB. 7009.

ECHINOCACTUS HASSELBERGII.

Native country unknown.

Nat. Ord. CACTEÆ.—Tribe ECHINOCACTEÆ.

Genus ECHINOCACTUS, *Link & Otto*; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 818.)

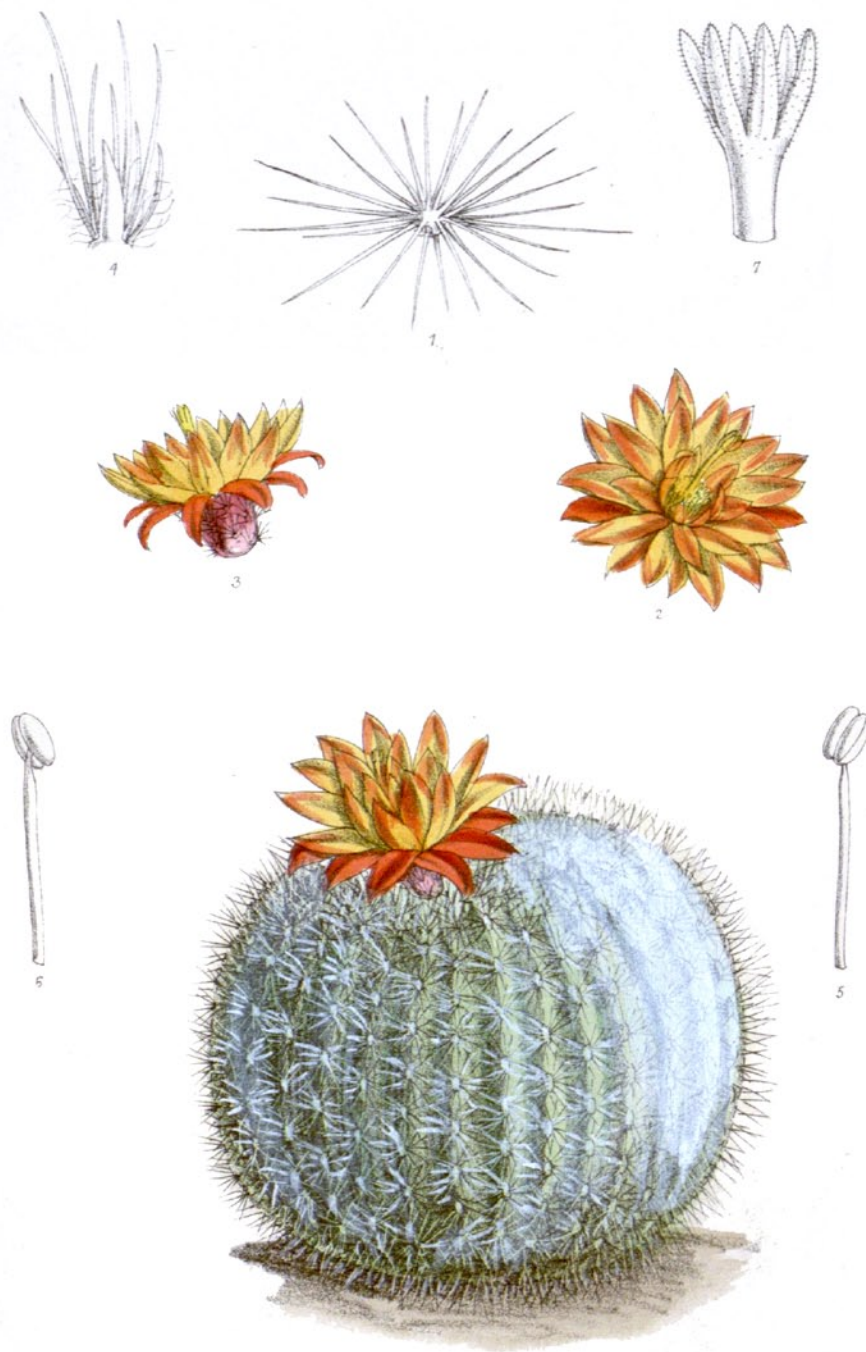
ECHINOCACTUS (*Microgonii*) *Haselbergii*; globosa v. oblata, pallide viridis, ob setas confertissimas argenteo-cana, tuberculis parvis convexis in seriebus innumeris dispositis convexis lævibus, areolis parvis albo-tomentellis, setis ad 20 gracillimis stellatim patentibus inæquilongis albis, interioribus erectioribus consimilibus, floribus ochraceo-rubris, perianthii tubo late campanulato setis fasciculatis suberectis basi pilosis instructo, laciniis ad 40, extimis 10–12 lanceolatis sub-acutis extus rubris intus ochraceis, interioribus consimilibus, intimis brevioribus, staminibus parvis brevibus confertis aureis, stylo columnari elongato, stigmatibus 6 erectis.

E. Haselbergii, *Först. Handb. der Cacteen.* vol. i. p. 563.

This is a beautiful little species; the crossing of its stellate tufts of silvery spicular spines partially obscuring the pale-green surface beneath, which is studded with the white areolæ, gives the effect of seeing the latter through a transparent medium; and the play of light and shade as the little globe is turned round is very pretty. Nothing appears to be known of its native country, and the only published notice of it which I have seen is in Forster's valuable Handbook, where it is briefly described (without flower), under the above name, under *E. Scopa*, Link, with the observation that the specimen was in the collection of Dr. Von Haselberg of Stralsund, an eminent cultivator of *Cacti*, who procured it from the dealer, Ad. Haage, jun., of Erfurt. The specimen here represented was purchased from Hildmann of Berlin, and flowered in April of the present year. Though belonging to the same section as *E. Scopa*, it is a very different species in the form of the whole plant and of the perianth, as well as in the colour of the latter and its segments, which are acute and quite entire.

DESCR. Globose or oblate, three inches in diameter, pale silvery grey from the copious spines. *Tubercles* small, convex, appearing almost vertically disposed in innumerable parallel series, but really spirally arranged, convex, pale

AUGUST 1ST, 1888.



green and shining, crowned with a snow-white tuft of hairs, from which the spines spring. *Spines* about twenty, acicular, half an inch long, silvery and glistening, stellately spreading, of unequal lengths, the inner erect, hardly longer than the outer. *Flowers* sessile, one to one and a half inches in diameter; ochreous yellow and red; perianth broadly campanulate; tube short, red, covered with tufts of suberect spines, segments about forty, outer series about ten, lanceolate, acute, spreading and recurved, bright red, inner gradually smaller, orange or ochreous yellow, with acute red tips. *Stamens* included, yellow. *Style* exserted, stout; stigmas six, lanceolate, erect.—J. D. H.

Fig. 1, Tuft of spines; 2, front, and 3, side view of flower; 4, spines of tube of perianth ; 5 and 6, stamens; 7, stigmas:—*all enlarged*.

ECHINOCACTUS HEXÆDROPHORUS.

Hexædron-Echinocactus.

Nat. Ord. CACTEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4190.)



ECHINOCACTUS hexædrophorus; globosus vertice planus saturate glaucus mammillarie tuberculatus tuberculis plane hexædri in duplicem seriem alternantibus (verticalem et spiralem), areolis immersis albido-tomentosis sursum elongatis, aculeis septem radiantibus inæqualibus, centrali uno validiori et duplo longiori, omnibus teretibus subulatis striatis. *Lem.*

ECHINOCACTUS hexædrophorus. Lemaire, Cact. Nov. Gen. et Sp. p. 27. Walp. Rept. Bot. v. 2. p. 322.

This handsome Cactus has long been cultivated at Kew, under the name here given, and it is said by the authority for that name to be a native of Tampico. It is of a nearly globose form and remarkable for its large tubercles, which are obscurely six-sided, whence the specific appellation is derived. Lemaire further says that the direction of these tubercles is in a double series, vertical and spiral; the double series in our plant is not an evident character, though it may sometimes be discerned. Its flowering season is June, and the blossoms are lively and pretty.

DESCR. Entire plant subglobose or turbinate, flattened at the top, divided into large six-sided depressed mammillæ, the lower and older part compressed and brown, the rest of a glaucous tint, the tubercles or mammillæ arrayed in spiral lines, with deep furrows between them. The areola is indicated by a linear depression in the disc of the tubercle, from which the cluster of spines springs. The spines are from four to seven in number, varying in length from half an inch to nearly an inch; the central one is the longest and strongest: all of them are rather stout, of a reddish-brown, subulate, more or less spreading. *Flowers* 2—3 from the crown of the plant. *Calyx* gradually passing into the numerous delicate, spreading, closely imbricated,

JULY 1ST, 1847.

linear *petals*, white, streaked with pink or deep rose on the outside, and sometimes faintly so within: their base is yellow. *Stamens* numerous, compact, full yellow. *Stigma* of 9—11 white spreading rays.

TAB. 6867.

ECHINOCACTUS JOADII.

Native of Uruguay ?

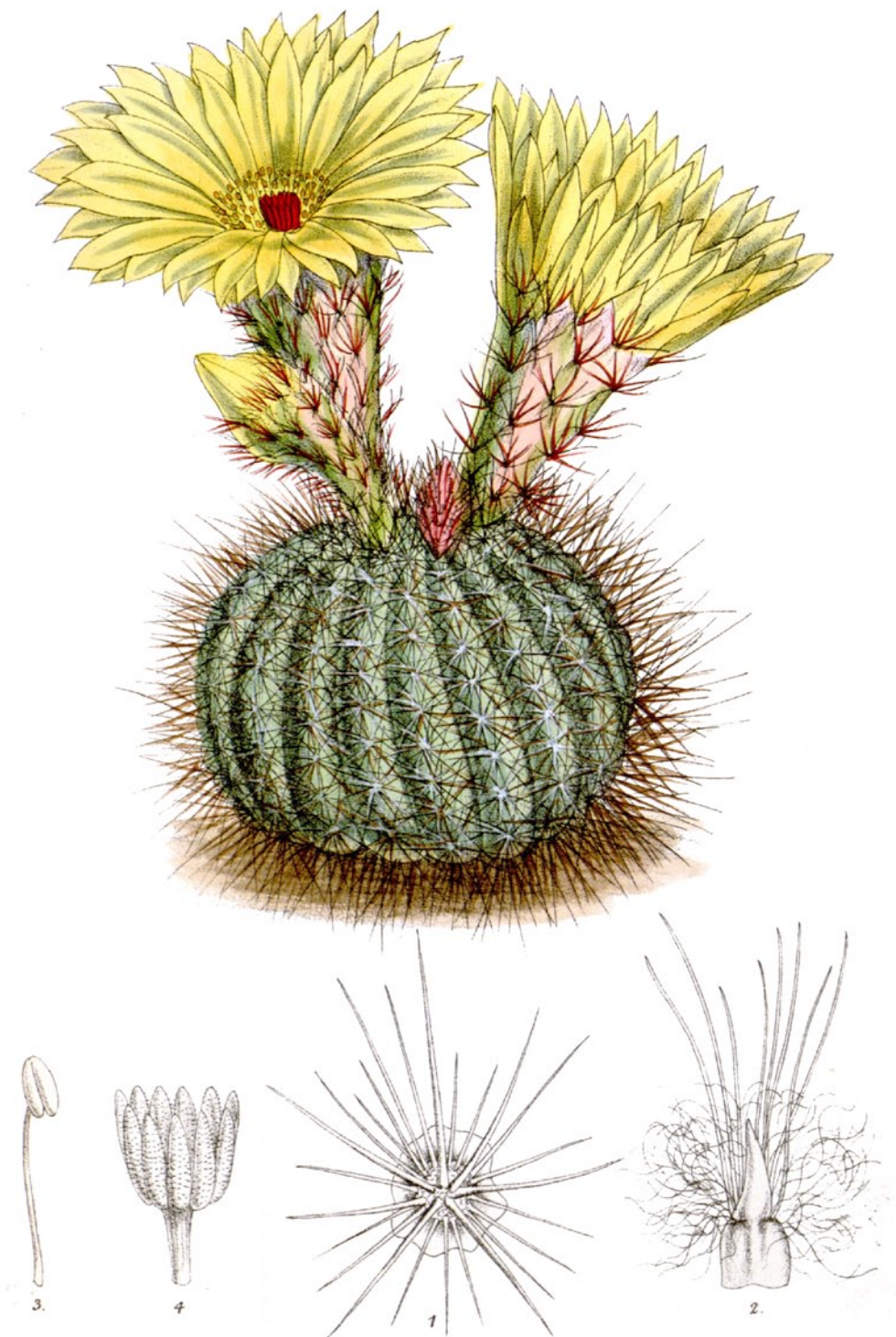
Nat. Ord. CACTEÆ.—Tribe ECHINOCACTEÆ.

Genus ECHINOCACTUS, *Link and Otto; (Benth. et Hook. f. Gen. Pl. vol. i. p. 348.)*

ECHINOCACTUS Joadii; parvulus, depresso-globosus, vertice alte depressus, læte viridis, costis ad $20 \frac{1}{3}$ poll. latis crenato-areolatis areolis (crenise) subdepresso mammillæformibus apice rotundatis lævibus, spinis intercrenalibus 15–25 exterioribus inæquilongis gracillimis erecto-patentibus albis, 1–4 centralibus fere duplo longioribus et fortioribus rubris porrectis, perianthio infundibulari 2–3 poll. lato, tubo $1 \frac{1}{2}$ poll. longo squamis perplurimis arete imbricatis dense obtecto, squamis oblongis $\frac{1}{3}$ poll. longis apice pilis longis tortis crinitis, apice squamula lanceolata setisque 8–10 erecto-patentibus rubris instructis, sepalis petalisque perplurimis pluriseratis lineari-lanceolatis acuminatis pallide aureis, antheris minutis, stigmatibus 10–12 erectis coccineis.

This beautiful species was in the rich collection bequeathed to the Royal Gardens by the late Mr. Joad, of Wimbledon, bearing the name of *E. mammulosus*, from the description of which, however, it widely differs. In form, size, number of ribs and their lobing into mammillæ, it agrees with that species, but the spines are far more numerous, more slender, none of them are flattened, and the inner ones are not deflexed. Mr. N. E. Brown, who has paid a good deal of attention to these plants, and has helped me in the determination of this, regards the species with recurved flattened inner spines as forming a very distinct group from those which, like *E. Joadii*, have perfectly terete slender straight ones. The difficulty of naming these Cacti from descriptions is so great, that it is with great hesitation that I put this forward as a new species; but no other course presents itself. *E. concinnus*, figured at p. 551 of the second edition of "Forster's Cacteen," and which is always placed next to *E. mammulosus*, strongly resembles this in form, habit, and in the disposition of the spines, but it has fewer broader ribs, only twelve to fourteen spines in a group, and has lanceolate scales in the perianth-

MARCH 1ST, 1886.



tube. It must, however, be a very near ally. As both *E. mammosus* and *concinus* are natives of Uruguay, I have doubtfully assumed *E. Joadii* to be a countryman of those species.

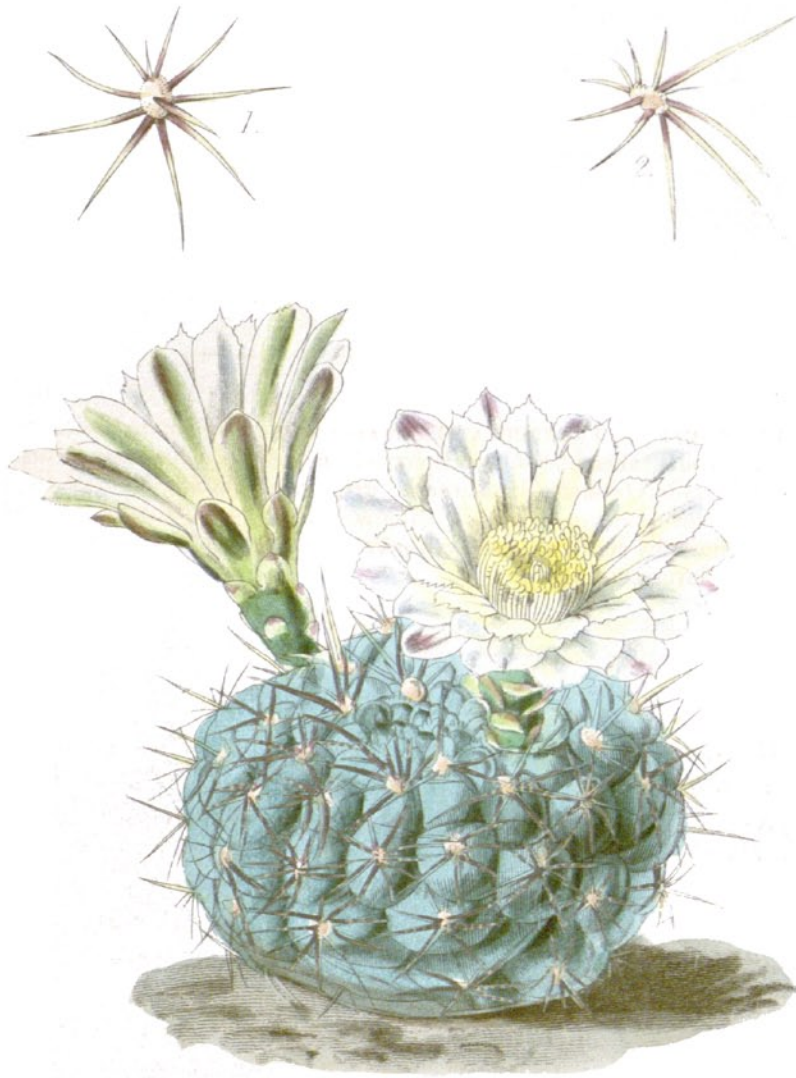
DESCR. Plant two and a half inches in diameter, depressed globose, with a sunken crown, green, glabrous, except at the spine-bases. *Ribs* about twenty, vertical, rounded, crenately lobed into low rounded mammillæ, which are most prominent towards the crown of the plant. *Spines* in groups of fifteen to twenty-five, sunk in the crenatures, with a small tuft of pale hairs at their bases; all very slender, terete and quite straight, outer a quarter to one-third of an inch long, erecto-patent, very unequal, pale; inner one to three inner three-quarters of an inch long, stouter, red, quite horizontal or the upper erect. *Flower* two inches long by two and a half in diameter. *Perianth* funnel-shaped; tube one and a half inch long, densely clothed with short imbricating oblong scales with rounded tips, each crowned with a lanceolate scale and eight to ten slender red spines, all surrounded at the base by a tuft of long curly hairs. *Sepals* and *petals* together in several series, lanceolate-acuminate, golden yellow. *Anthers* very small. *Stigmas* ten to twelve, erect, bright red.—*J. D. H.*

Fig. 1, Tuft of spines; 2, scale from tube of perianths; 3, stamens; 4, stigmas:—all enlarged.

ECHINOCACTUS LEEANUS.

Mr. Lee's Echinocactus.

Nat. Ord. CACTEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 4124.)

ECHINOCACTUS (§ TUBERCULATI) *Leeanus*; depresso-globosus obscure subglauco-viridis tuberculis subhemisphæricis majusculis obtuse hexahedris mammi-formibus confluentibus, in series irregulares subverticales dispositis, areolis ovalibus tomentosis, aculeis subgracilibus quorum subdecem patentibus rectiusculis cum unico centrali porrecta vix majore, floribus majusculis pallide flavescentibus.

Raised by Messrs. Lee of the Hammersmith Nursery, from seeds sent from the Argentine provinces by Mr. Tweedie of Buenos Ayres, in 1840. The specimen here figured blossomed in May, in the Cactus-house of the Royal Botanic Gardens of Kew. I do not meet with its description in any book to which I have access, and therefore venture, though not without hesitation, to publish it as new. It may rank near our *E. multiflorus* (supra, Tab. 4181), but is in reality very different.

DESCR. A small species, globose, but depressed at the top. Tubercles which compose the surface rather large, hemispherical, but having about six very obtuse angles, of a rather glaucous green colour, not arranged in distinct lines or series so as to form ridges with their corresponding furrows, but placed with a good deal of irregularity, becoming, below especially, confluent and obsolete, at the top small and very numerous. *Areolæ* oval, downy, or rather woolly, producing about eleven rather slender *spines*, of which one, the central one, stands forward and is quite straight; the other ten are slightly recurved, and spread horizontally (especially on the older tubercles), most of these are nearly equal in size and about half an inch long. *Flowers* from the summit or depressed portion above, one or two moderately large. *Tube* short, covered

SEPTEMBER 1ST, 1845.

with green roundish or oblong obtuse scales, the upper ones larger, with pale edges and tips, and gradually passing into the pale sulphur or almost cream-coloured petals.



Fig. 1 and 2. Areole with the aculei:—*slightly magnified*.





TAB. 4632.

ECHINOCACTUS LONGIHAMATUS.

Long-kooked Echinocactus.

Nat. Ord. CACTEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 4124.)

ECHINOCACTUS *longihamatus*; subglobosus viridis 13-angulatus, costis validis subacutis, areolis magnis oblongis breviter lanatis in tuberculis magnis rotundatis remotis positis, aculeis externis 9 rectis radiantibus, internis 4 validioribus, 3 superis erectis striatis, centrali longissimo planulato hamato. *Salm-Dyck.*

ECHINOCACTUS *longihamatus*. *Galeotti in Pfeiff. Abbild. v. 2. t. 16. Salm-Dyck, Cactæ in Hort. Dyck. cult. p. 28 et 152.*

ECHINOCACTUS *hamatocanthus*. "*Muhlenpf. A. G.Z. 1846, p. 371.*"

We heartily wish all species of Cactaceous plants were as readily distinguished, and as easily defined in words, as is the present remarkably fine and handsome one:—remarkable in the very prominent ridges, the large and regularly arranged spines, the central one very long, flattened, and hooked at the end, and handsome in the size and colouring of its flowers, both in the bud and when fully expanded. It is a native of Mexico, and appears to have been introduced to our collections by M. Galeotti. It flowers with us in the Cactus-house in July.

DESCR. Our flowering specimen is nearly globose, and almost a span high, deeply furrowed with about thirteen prominent, moderately acute *ridges*, whose edge is waved by the projecting tubercles in which the areolæ are slightly sunk. These *areolæ* are large, oblong, lined with short, dense, dark-coloured wool, from which proceed about twelve or fourteen long and strong *spines*, bright red when young, afterwards brownish-grey, tinged with red, especially at the base; most of them are radiately spreading, the outer ones the slenderest, the central one is remarkably long, four inches in length, flattened, deflexed, and curved into a hook at the extremity. *Flowers* large, handsome, between three and four inches long, and as broad from tip to tip of the petals. *Calyx-tube* ark green, studded with roundish scales,

FEBRUARY 1ST, 1852.

red in the middle, white at the margins; these scales gradually pass into bright yellow *petals*, with a deep red blotch towards the apex, the innermost oblong-spathulate, acute or apiculate, only slightly tinged with red at the tip. *Stamens* numerous, yellow, crowded beneath the *stigma*, and scarcely longer than the tube of the flower: rays of the *stigma* ten to twelve, linear, pale yellow, spreading. *W. J. H.*

CULT. This species, like its allies, inhabits dry places, often enduring great heat and long drought, and at times deluged with rain; but, owing to the nature of the soil and situation of the plant, the water passes off so rapidly that but little reaches the soft fibrous roots. In order to cultivate these plants successfully, we must endeavour to place them under conditions as nearly resembling those here described as the nature of our climate will permit. Many species of *Echinocactæ* will endure a low temperature, even to freezing, without being injured; but in this country it is necessary to grow them under glass. As stated at Tab. 4417, it is not generally important as to the kind of soil in which *Cactæ* are grown if it be not retentive of water. A mixture of light loam and leaf-mould, with a small portion of lime-rubbish nodules, is suitable for most of them. The general practice is to grow them singly in pots, but where circumstances permit we would plant them on artificial rockwork within the house, exposed to the full influence of the sun, and so arranged as to allow all superfluous water to pass off quickly. A few inches' depth of soil will be sufficient for the roots. By this method the soil can be kept at a more uniform degree of moisture in winter; the roots being, therefore, less liable to injury from the frequent watering necessary in pot cultivation. In summer, full exposure to the sun, and frequent syringing, will be found beneficial. *J. S.*

(3561)

ECHINOCACTUS MACKIEANUS. MR. MACKIE'S
ECHINOCACTUS.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

Sepala numerosa imbricata, basi ovarii adnata, in tubum brevissimum concreta, exteriora involucriformia, intima petaliformia. *Stamina* numerosa. *Stylus* filiformis, apice multifidus. *Bacca* sepalorum reliquiis subsquamata. *Cotyledones* nullæ?—*Frutices simplicissimi carnosi ovati aut globosi melocactoidei costati aphylli, costis tuberculis confluentibus quasi formatis, dorso aculeorum fasciculos gerentibus*. *Cephalium seu spadix nullus*. *Flores e fasciculis aculeorum ad apices costarum orti, similes floribus Cerei sed tubo vix ullo donati*. D. C.

Specific Character.

ECHINOCACTUS *Mackieanus*; obovatus mammillosus, mammillis magnis conico-depressis in costas 16—17 sub-regulares dispositis apicibus lanosis spinis 8—10 longis gracilibus patentibus fuscis terminatis, floribus albis apicibus rubro-tinctis.

This species is also from the rich collection of Messrs. MACKIE of the Lakenham Nursery, and like that given at t. 3558 has a considerable affinity with the Genus MAMMILLARIA: but it is a much more neatly made and elegant species. The drawing came marked as "*E. melocactformis*:" but it cannot be the species so called of DE CANDOLLE, figured at tab. 10 of the "*Revue de la Famille des Cactées*" which is a totally different plant. Ours, we believe, was formerly in Mr. HITCHIN's collection, where it was derived from Kew.

It

It is probably a native of Chili, like the ECHINOCACTUS *mainmillarioides*.

The Messrs. MACKIE observe in their letter, that this is a fine species, but of very slow growth, and more difficult to keep in health than the genuine ECHINOCACTI; it requires however the same treatment.

(3558)

ECHINOCACTUS MAMMILLARIOIDES. MAMMIL-
LARIA-LIKE ECHINOCACTUS.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

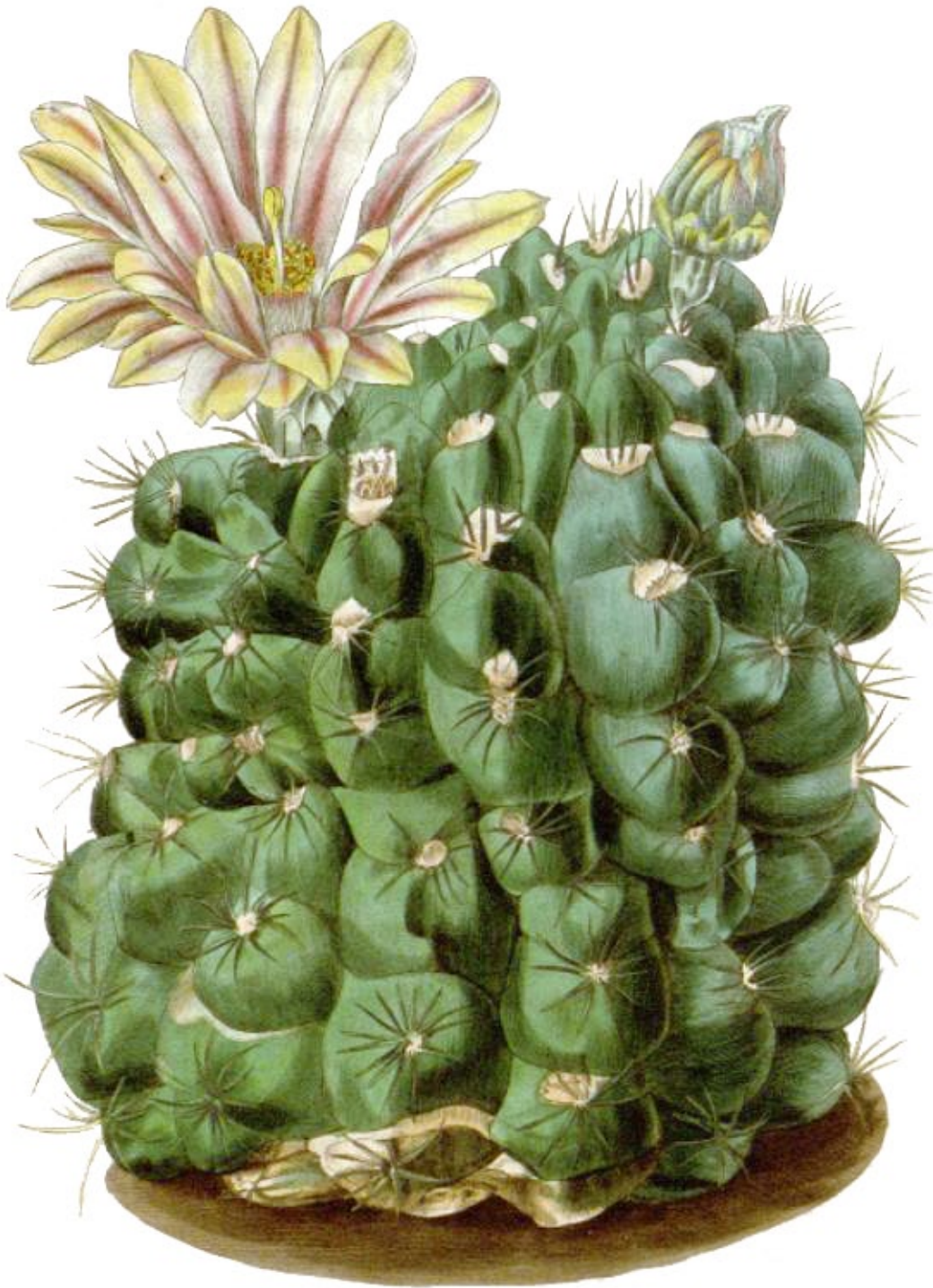
Generic Character.

Sepala numerosa imbricata, basi ovarii adnata, in tubum brevissimum concreta, exteriora involucriformia, intima petaliformia. *Stamina* numerosa. *Stylus* filiformis apice multifidus. *Bacca* sepalorum reliquiis subsquamata. *Cotyledones* nullæ?—Frutices *simplicissimi carnosi ovati aut globosi melocactoidei costati aphylli, costis tuberculis confluentibus quasi formatis, dorso aculeorum fasciculos gerentibus*. *Cephalium seu spadix nullus*. *Flores e fasciculis aculeorum ad apices costarum orti, similes floribus Cerei sed tubo vix ullo donati*. D C.

Specific Name and Character.

ECHINOCACTUS *mammillarioides*; subrotundo-cylindræus mammosus, mammillis magnis conico-hemisphericis subangulatis in costas 14—16 subspirales irregulares dispositis, apicibus lanosis spinis sub-7 breviusculis gracilibus patentibus pallidis terminatis, floribus flavo-rubris.

Introduced by Mr. HITCHIN from Chili, and now in the rich collection of CACTEÆ of Messrs. MACKIE of the Lakenham Nursery, near Norwich, who kindly communicated the drawing of the flowering specimen in the autumn of last year (1836). They justly observe, that the species appears in the structure of the stem to be intermediate between MAMMILLARIA and ECHINOCACTUS. It is covered with mammillæ of



a large size indeed, but these are arranged in costæ, which are irregular, and slightly spiral; but the flowers appear to be quite those of the latter genus.

Not having seen the living specimen, I do not attempt a description; nor does the excellent figure seem to require it. It flowers very freely, and the blossoms continue in perfection for several days. In one instance, there were about sixteen flowers expanded upon the same plant at one time.



TAB. 8583.

ECHINOCACTUS MINUSCULUS.

Argentina.

CACTACEAE. Tribe ECHINOCACTEÆ.

ECHINOCACTUS, *Link et Otto; Benth. et Hook. f. Gen. Plant.* vol. p. 848.

ECHINOCACTUS minusculus, *Weber in Bois, Dict. d'Horticulture*, vol. i. p. 471; *K. Schum., Gesamtb. Kakt.* p. 896, *et in Blüh. Kakt.* vol. i. . 81; *La Tribune Hort.* 1909, t. 140; affinis *E. Fiebrigii*, *Guerke*, sed tuberculis minoribus, spinis brevioribus et ovario glabro differt.

Herba succulenta, globosa, vertice deressa, simplex vel prolifera, 2·5–6 cm. diametro; tubercula convexa, spiraliter disposita, 1–2 mm. alta, laete viridia. Aculei 25–30, centralibus et radialibus similibus, 2–3·5 mm. longi. Flores e basi plantae enati, erecti, elongato infundibuliformes, 2·5–3 cm. longi et diametro, glabri; tubus gracilis, basi curvatus, pulchre kermesinus cum squamis ovatis acuminatis fusco-rubris conspersus; petala circiter 12, ad 1·5 cm. longa, 4 mm. lata, lineari-oblonga, acuta, apice minute denticula, pulchre cinnabarina. Stamina 15–30, albida. Stigma 4–5-lobum, albidum.—Rebutia minuscula, Weber in Bois, Dic. d'Horticulture, vol. i. p. 471.—N. E. BROWN.

The *Echinocactus* now figured is a native of the province of Tucuman in Argentina, which was first introduced to European collections of succulent plants in 1894 or 1895 by Mr. Felder of Liehterfelde, who had received it from Mr. Rebut of Chazay d'Azergues, in Argentina. It is one of the most pleasing and at the same time one of easiest to grow of the small *Cactaceae*, thriving well open mixture of turfy loam, sand and mortar-rubbish in an airy sunny greenhouse. Under these conditions extremely floriferous and produces seeds in abundance. Each flower, however, lasts only for a day or two. Propagation is readily effected by seeds, and seedlings reach the flowering stage when three to four years old. The plant from which the material for our plate has been obtained was purchased for the Kew Collection in 1913 from Messrs. Cragg, Harrison and Cragg, Nurserymen, Heston. *E. minusculus* and *E. Fiebrigii*, *Guerke*, agree with each other, and are remarkable in the genus *Echinocactus* for producing their flowers from the base instead of the upper part of the plant, a

NOVEMBER, 1914.

feature which readily distinguishes them from the other species.

DESCRIPTION.—*Herb*, succulent, globose with a depressed apex, simple or proliferous, $1-2\frac{1}{4}$ in. across; tubercles convex, spirally arranged, under 1 lin. high, bright green; spines in tufts of 25–30, the central and radial similar, $1-1\frac{1}{2}$ lin. long. *Flowers* rising from the base of the plant, erect, long-infundibuliform, $1-1\frac{1}{4}$ in. long and as much across, glabrous; tube slender, curved at the base, bright crimson, dotted with ovate, acuminate, reddish tawny scales; petals about 12, up to $\frac{2}{3}$ in. long, $\frac{1}{6}$ in. wide, linear-oblong, acute, minutely denticulate at the tip, bright vermillion. *Stamens* 15–30, whitish. *Stigma* 4–5-lobed, whitish.

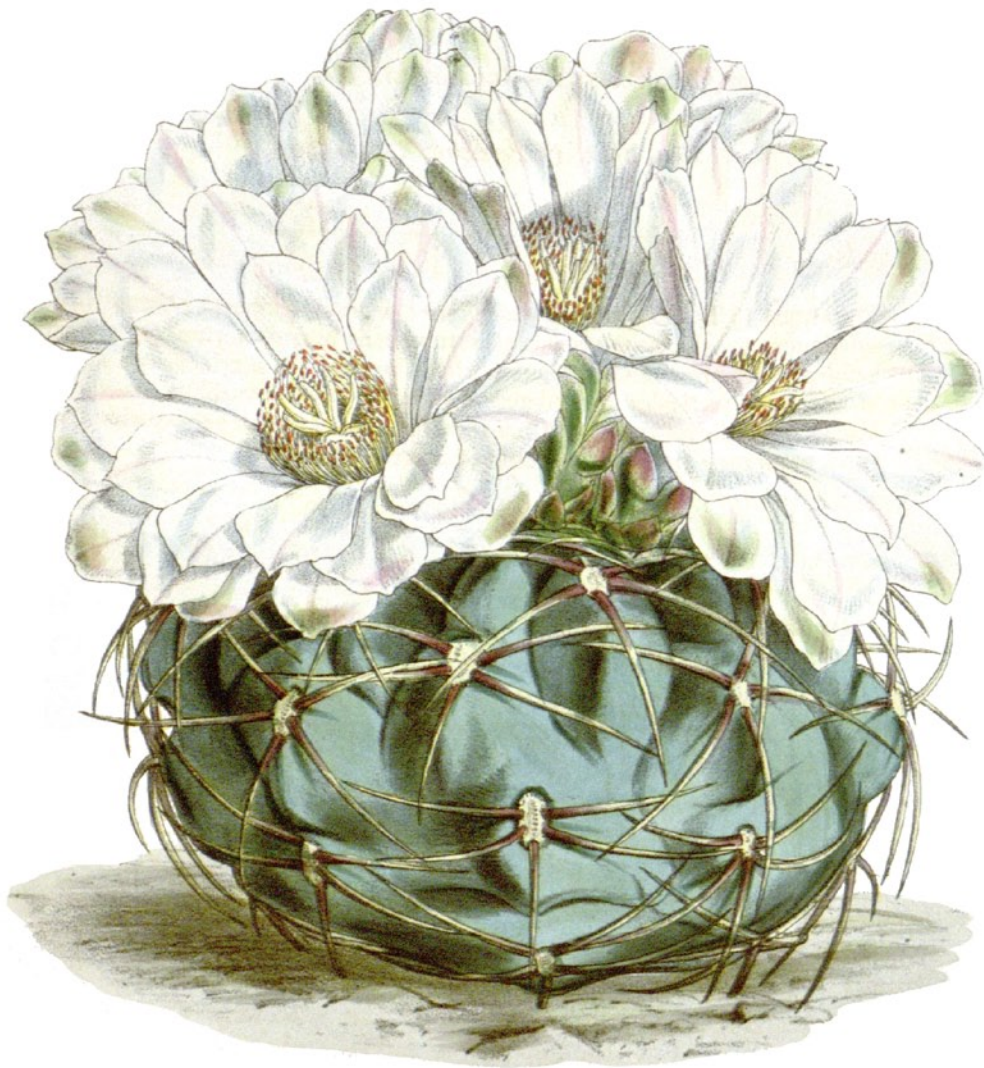
Fig. 1, a tuft of spines; 2 and 8, stamens; 4, style and stigmas:—*all enlarged*.

ECHINOCACTUS MULTIFLORUS.

Many-flowered Echinocactus.

Nat. Ord. CACTEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 4124.)



ECHINOCACTUS (§ TUBERCULATI) *multiflorus*; depresso-globosus obscure viridis subglaucus tuberculatus vix costatus, tuberculis magnis verticaliter oblongis hemisphæricè prominentibus mammæformibus demum confluentibus superne in series subverticales irregulares dispositis, areolis ovalibus tomentosis, aculeis 5 validis reflexo-patentibus recurvatis subappressis subæqualibus, floribus numerosis (pro plantæ ratione) magnis albidis.

From the rich collection of Cactuses in the possession of Mr. Palmer, of Stockwell, near London, who obligingly sent a specimen (the one here figured), to Kew, on the eve of its blossoming. Of its native country we are ignorant, and it does not appear to be described; but on this subject it behoves us to speak with caution, for no plants are so difficult to define by words as the individuals of this now extensive family: figures, alone, can render the distinguishing characters of them intelligible. The species is remarkable for the large tubercles, strong spreading recurved and almost appressed spines, and for the copious pale, almost white, flowers, tinged with greenish-brown.

DESCR. Our only specimen is of the size here represented, globose, depressed at the top, green, slightly glaucous. *Tubercles* large, irregularly placed, upper ones only in an imperfect vertical series, and those oblong or oval, very prominent, obscurely angled. *Areolæ* oval, woolly; bearing five nearly equal spines, about an inch long, diverging, but not on all sides, two opposite pairs laterally and the lower one towards the base of the plant; all are so much spread and decurved that they may almost be appressed strong, of a yellowish colour, purple at the base. *Flowers* large (for the size of the plant), numerous, several opening at one time, so as to cover and conceal the upper surface

SEPTEMBER 1ST, 1845.

of the plant. *Calyx-scales* green, gradually enlarging and becoming petaloid, till at length they pass into the spreading, obovate, almost white *petals*. *Stamens* numerous. *Anthers* small orange. *Rays of the stigma* white, or nearly so.

ECHINOCACTUS MYRIOSTIGMA.

Many-spotted Echinocactus.

Nat. Ord. CACTACEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4115.)



ECHINOCACTUS (§ ASTEROIDEI, *Salm-Dyck*) *myriostigma*; suborbicularis v. demum oblongus, profunde 5–6 sulcatus totus punctis seu pulvinulis minutis lanosis sparsis tectus, angulis valde prominentibus ad carinam planis areolatis, areolis approximatis transversis lanosis inermibus, floribus ex umbilico terminali stramineis, sepalis superioribus glabris apice sphacelatis mucronatis, petalis subuniseriatis.

ECHINOCACTUS *myriostigma*. *Salm-Dyck*, *Cact. Hort. Dyck*, p. 22.

ASTROPHYTUM *myriostigma*. *Lemaire*, *Cact. Nov.* p. 4.

One of the most singular of the singular family of *Cactaceæ*, and still considered a rarity in collections; first described by Lemaire in 1839, but from very imperfect specimens, of which even the native country was not known, but which presented such remarkable characters, independent of flower and fruit, that he ventured to constitute of it a Genus, under the appropriate name of *Astrophytum*. The flowers, however, (for we are still ignorant of the fruit) seem to present no characteristic marks to distinguish it from *Echinocactus*, and I venture to follow the Prince de Salm-Dyck in considering it to form a section of that extensive genus, which he has called *Asteroidei*. The transverse section not inaptly resembles a star-fish. We owe the possession of our specimens in the Royal Gardens to F. Staines, Esq., of San Luis Potosi, Mexico, who sent us, in the first instance, specimens a foot long; but coming in contact, as it would appear, with a “monster species” enclosed in the same case, they were bruised and eventually perished. Others were afterwards forwarded of a smaller size, and one of them here figured threw out its pretty starry straw-coloured flowers from the depression at the top of the plant in July 1845.

DESCR. Plant eventually attaining a height of a foot and probably more, at first subrotund, in age becoming more oblong, AUGUST 1ST, 1845.

umbilicated at the top, the sides formed of five or six deep furrows and as many broad, projecting angles; the whole surface covered with white, scale-like dots, which when carefully examined are seen to be formed of matted and as it were interwoven hairs; the keel of the angles is not sharp, but flattened, as if cut off with a knife, and this is occupied by closely placed transversely oblong areolæ, filled with a floccose substance, but bearing no spines. In the umbilicus alone, whence the flowers appear, there are a few small brown rigid setæ rather than spines. *Flowers* aggregated at the top of the plant, rather small, of a delicate straw-colour. *Sepals* closely imbricated, oblong, tipped with a black point and a mucro. *Petals* resembling them, but longer, arranged nearly in one series, linear, acute, but not mucronate, nor sphacelate at the tip.



TAB. 4162

ECHINOCACTUS OXYGONUS.

Sharp-angled Echinocactus.

Nat. Ord. CACTEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. (Vide supra TAB. 4124.)

ECHINOCACTUS *oxygonus*; subglobosus v. magis minusve elongatus vertice depresso 13—15 angularis, sinubus profundis, costis compressis sinuato-lobatis circa areolas subinflatis, areolis remotis rotundis junioribus flavido-dein griseo-tomentosis, aculeis 6—8—10 semiuncialibus subulatis rectiusculis subæqualibus patentibus, floribus (roseis) inter maximos, tubo longissimo superne dilatato squamis villosis.

ECHINOCACTUS *oxygonus*. *Link et Otto in Verhandl. des Pr. Gart. Vareins. v. 6. t. 1. Lindl. Bot. Reg. t. 1717. Pfeiff. Enum. Cact. p. 70.*

Scarcely any plant possesses more noble or more lovely blossoms than the present; and they are the more striking, from the circumstance of their being produced from so graceless and small a trunk. It is, moreover, a free-flowering plant in the month of May; and we have, while I am writing, specimens with three blossoms expanded at the same time: their duration, is, in cloudy weather at least, of two days. The species is said to be a native of South Brazil.

DESCR. Our specimens are from seven to ten inches in height, subglobose, but generally a little longer than broad; hence somewhat oval, or obovate, depressed at the top; green slightly inclining to glaucous. There are from thirteen to fifteen deep furrows, with acute sinuses, and as many prominent, compressed ridges, sinuato-lobate at their edges. *Areolæ* about three-fourths of an inch apart, sunk, as it were, in the upper edge of each lobe, sphaerical, woolly, with six to ten, rather short, straightish, spreading, nearly equal *spines*. It is from the areole of some of the upper lobes that the flowers spring, a span and more long, often longer than the plant itself. *Tube* very long, trumpet-shaped, greenish, with many red-brown, villous, appressed scales, which gradually

become longer and larger upwards, and pass into deep rose-colored, calycine segments, and these again into the oblong, apiculate, slightly serrated, pale rose-colored, spreading *petals*. *Stamens* pale straw-color, copious, nearly equal in height. *Style* and *stigmas* almost white.

Fig. 1. Reduced figure of a Flower. 2. Upper portion of a Plant and Flowers:—*nat. size*.

ECHINOCACTUS PECTINIFERUS.

Pectinated Echinocactus.

Nat. Ord. CACTEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. *Sepala* numerosa imbricata, basi ovario adnata, in tubum brevissimum concreta, exteriora involucriformia, intima petaliformia. *Stamina* numerosa, calyci affixa, inæqualia, intima brevissima, filiformia, antheris oblongis. *Stylus* cylindricus, subfistulosus, apice multifidus. *Bacca* sepalorum reliquiis subsquamata, rarissime lævis. *Cotyledones* parvulæ.—Frutices simplicissimi carnosi, ovati aut globosi, melocactoides aut mammillariæformes, aphylli, costati aut tuberculati, costis tuberculis confluentibus quasi formatis, dorso aculeorum fasciculos gerentibus. Cephalium seu spadix nullus. Flores e fasciculis aculeorum ad apicem costarum orti, similes floribus Cerei, sed tubo vix supra receptaculum elongato. Pfeiff.

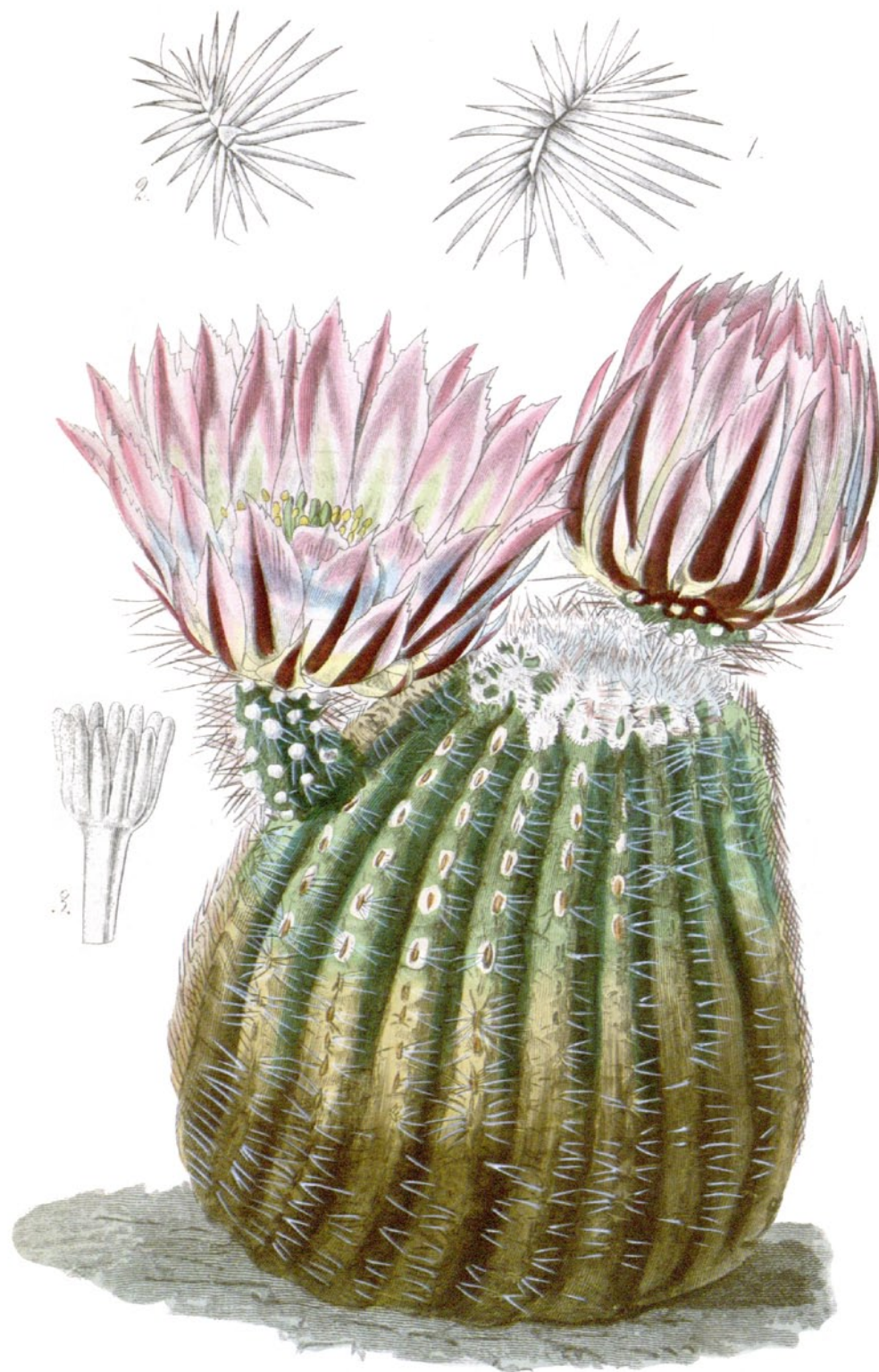
ECHINOCACTUS pectiniferus; subrotundo-ovatus vertice depresso sub 20-costatus, costis elevatis submammillatis obtusis, areolis approximatis ovalibus junioribus albo-lanatis, aculeis copiosis biformibus in singula areola albis demum fuscis breviusculis compressis, exterioribus patentissimis bifariam radiantibus subpectinatis interioribus 4–6 erectis minoribus sæpe abortientibus, floribus subterminalibus, ovario oblongo superne dilatato areolato areolis albo-lanatis setoso-aculeatis, sepalis extus setosis, petalis (roseis) oblongo-lanceolatis acuminatis serratis.

ECHINOCACTUS pectiniferus. Lemaire, *Cact. Nov.* p. 25.

It is the case with this small but showy *Echinocactus* as with too many others in our collection; descriptions can give no adequate idea of the varied forms of these plants, especially as regards the nature of the costæ, the spines, and their arrangement in the areolæ, of the flowers, &c. The present species flowered in the Royal Gardens of Kew in April 1845, and was received from San Luis, Mexico, among many fine *Cacteæ* sent by Mr. Staines. So uncouth a looking trunk would hardly be expected to give birth to such large and handsome flowers. Professor Lemaire alone has described this curious plant in his “*Cactearum Genera nova speciesque novæ et omnium in Horto Monvilliano cultarum, &c.*,” but he was ignorant of the blossoms.

DESCR. Plant, in our specimens, about four inches high, subrotund or ovate, rather suddenly contracted above the middle, depressed and even umbilicated at the top, deeply cos-

OCTOBER 1ST, 1845.



tate, with about twenty prominent costae, which are obtuse and somewhat mammillose at the margins; in the centre of each mamilla is an oblong, white, woolly, close-placed areola, with numerous rather short spines or aculei, whose arrangement is very peculiar. They are of two kinds; the greater number, twenty and more, are about three lines long and spread out almost horizontally in two rows, closely placed in a pectinated manner, whitish or yellowish-white, tipped with red or brown, almost united at their base, the middle ones the longest; between these two rows are a few smaller ones. *Flowers* solitary, two or more from the same crown, and springing from near the top, large for the size of the plant, very beautiful. *Ovary* oblong-cylindrical, a little expanded upwards, studded with white woolly areolæ which produce several rather soft hair-like, white spines, tipped with rose, and which appear also (but still longer and softer) on the outer segments of the perianth. *Sepals* ovate, cuspidate, yellowish-green tinged with purple, and having a broad dark dorsal purple line; these sepals gradually pass into the longer and more delicate rose-coloured *petals*, greenish at their base and serrated at their margins above. *Stamens* numerous. *Stigma* of about thirteen greenish rays.

Fig. 1, 2. Clusters of aculei. 2. Apex of style with the rays of the stigma:—magnified.

ECHINOCACTUS PENTLANDI. RED-FLOWERED
ECHINOCACTUS.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

Sepala numerosa imbricata, basi ovario adnata, in tubum brevissimum concreta, exteriora involucriformia, intima petaliformia. *Stamina* numerosa, calyci affixa, inæqualia, intima brevissima, filiformia, antheris oblongis. *Stylus* cylindricus, subfistulosus, apice multifidus. *Bacca* sepalorum reliquiis subsquamata, rarissime lævis. *Cotyledones* parvulæ.—Frutices simplicissimi carnosi, ovati aut globosi, melocactoidei aut mammillariæformes, aphylli, costati aut tuberculati, costis tuberculis confluentibus quasi formatis, dorso aculeorum fasciculos gerentibus. Cephalium seu spadix nullus. Flores e fasciculis aculeorum ad apicem costarum orti, similis floribus Cerei, sed tubo vix supra receptaculum elongato. Pfeiff.

Specific Character and Synonym.

ECHINOCACTUS *Pentlandi*; globosus vertice umbilicato sub-12-costatus glaucus, costis elevatis remote crenatis, sinubus acutis, areolis distantibus albo-lanatis, aculeis subvalidis æqualibus paululum arcuatis stellatim patentibus rufo-fuscis, floribus lateralibus sparsis solitariis, tubo calycino squamoso, squamis ciliato-pilosis, petalis sepalisque rufescenti-roseis lanceolatis mucronatis.

ECHINOCACTUS *Pentlandi*. *Hortul.*



In the rich collection of the Royal Gardens of Kew; but of its history, I regret to say, we know nothing. It is a very

very pretty species, more remarkable for the rose-red colour of the flowers, than for any other striking peculiarity.

DESCR. Plant nearly globose, sessile, about two inches across, depressed and umbilicate at the top, deeply marked with about twelve *furrows*, which are sharp in their sinuses, and as many prominent, obtuse ribs: of a glaucous-green tint. *Ribs* lobed, or remotely crenate, distantly beset with *pulvinuli* or little woolly tufts or areolæ, from which rise about six, slightly curved, spreading, rather stout *spines*, each half an inch long, or a little more. The *flowers* are large in proportion to the size of the plant, and spring from the sides upon the ribs, solitary, but three or four are expanded on one specimen at the same time. *Calyx-tube* green, becoming yellow above, and beset with small, pilose, and ciliated *scales: limb* of the calyx yellow-red upwards and within. *Petals* deep rose colour. *Stamens* numerous, nearly white.

Fig. 1. Fruit. 2. Side view of the Spines:—*magnified*.

ECHINOCACTUS RHODOPHTHALMUS.

Red-eyed Echinocactus.

Nat. Ord. CACTEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4124.)



Fitch del et lith.

R. B. & R. 1850

ECHINOCACTUS rhodophthalmus; solitarius subelatus conico-columnaris profunde 8–9-sulcatus, costis obtusis crenato-tuberculatis tuberculis compressis sub-hemisphæricis, areolis obsolete lanatis, aculeis subnovem validis rectis purpureo-fuscis demum pallidis, centrali subduplo majore, calycis tubo ob-conico squamoso inermi squamis sepalisve ovatis albomarginatis, petalis spathulatis roseis basi intense rubris.

Received from Mr. Staines, who procured it from the neighbourhood of San Luis Potosi, Mexico, and we do not find the description of any species to correspond with it. In its flourishing state it is exceedingly handsome, the deep red of the base of the petals forming a ring, as it were, round the densely-clustered stamens and bright yellow rays of the stigma, adding much to the beauty of the blossom. It flowers with us in August.

DESCR. Our *plants* are from four to five inches high, sub-columnar, but tapering upwards almost from the base, deeply cut into about eight or nine furrows, the ridges obtuse, but formed into lobes or tubercles by transverse lines; the tubercles are sub-hemisphæric but compressed; the *areolæ* furnished with obscure wool: the *spines* about nine, strong, straight, tapering, flattened, at first deep purple, afterwards pale and almost colourless, length from three-quarters of an inch to an inch, mostly spreading, but the central one, which is much the longest and strongest, stands forward. The *flowers* are produced from the summit of the plant, large, handsome. The *calyx-tube* (or green portion) about an inch long, ob-conical, quite destitute of spines or setæ, but with the *scales* or *sepals* ovate, brown with pale margins, gradually passing into the long, linear-spathulate, acute, spreading, bright rose-coloured *petals*, which have a dark red almost crimson spot at the base, forming a radiating circle around the column of stamens and style. *Stamens* numerous, very compact: *filaments*

white, slender: *style* as long as the stamens: *stigma* of nine or ten spreading, bright yellow rays, covering the anthers. *W. J. H.*

CULT. At Tab. 4417 we have said that *Cacteæ* are almost indifferent as to the kind of soil they are grown in, provided it is not retentive of moisture. The present very pretty species will thrive in a mixture of light loam and leaf-mould, containing a small quantity of lime-rubbish nodules; the latter being for the purpose of keeping the mould from becoming close and compact, a condition not suitable to the soft and tender roots of the plant. If cultivated in a pot, it must be well drained; the pot being nearly half filled with broken potsherds, and the upper layer so placed as to cover the interstices, in order to prevent the mould from mixing with the drainage. During winter, Mexican *Cacteæ* do not require much artificial heat: several species are, indeed, known to bear with impunity a few degrees of frost. Where they can be cultivated by themselves, we recommend that the plants and atmosphere of the house should be kept in a dry state during winter, artificial heat being given only during a long continuance of damp cold weather or in severe frost; but at no time during winter needs the temperature of the house to exceed 50° at night. In sunny days in spring the house should be kept close, in order that the plants may receive the full benefit of the heat of the sun's rays. As the summer-heat increases air should be admitted, and occasionally the plants should be freely watered, and in hot weather daily syringed over-head. *J. S.*

4634.



TAB. 4634.

ECHINOCACTUS RHODOPHTHALMUS;

var. ELLIPTICUS.

Red-eyed Echinocactus; elliptical variety.

Nat. Ord. CACTEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4124.)

ECHINOCACTUS *rhodophthalmus*. (*For specific character and description, see TAB. 4486.*)

Var. *ellipticus*; basi contractus; spinis rubescentibus.

It was not till all the plates were worked off for publication that we ascertained that this Mexican *Echinocactus* was specifically the same as that we have given at our Tab. 4486, differing almost solely in its smaller size, more elliptical form, *i. e.*, with the base contracted instead of spreading so as to give a conical form to the stock, and in the redder colour of the spines. We can only consider it as a variety of a groupe of plants which is very apt to sport. *W. J. H.*

CULT. This is a variety of the species figured at Tab. 4486, and will succeed if treated in the manner there described. *J. S.*

Fig. 1. Cluster of spines, separated from the plant, and very slightly magnified.

MARCH 1ST, 1852.

ECHINOCACTUS SCOPA.

Broom Echinocactus.

Nat. Ord. CACTACEÆ.—ICOSANDRIA POLYGYNIA.

Gen. Char. Perigonii tubus ultra germen productus, brevis, vel subelongatus, squamosus; phylla sepaloidea, infima squamiformia; superiora acuta vel obtusa, axillis setigeris vel nudis; petaloidea varie expansa, corollam campanulatam vel infundibuliformem æmulantia. Stamina numerosa, tubo adnata, limbo breviora. Stylus stamina vix superans, columnaris, sæpe sulcatus ac fistulosus. Stigma 5–10-radiatum, radiis abbreviatis aut lineari-extensis. Bacca perigonium marcescens dejiciens, sepalis adnatis plus minusve squamata, pulvillis lani-setigerisque instructa, vel interdum glabra. Cotyledones minutæ, connate, acutæ vel globosæ.—Caulis carnosus, depressus, globosus, oblongus aut cylindraceus, costis plus minusve numerosis, aut tuberculis pulvilligeris distinctis verticaliter aut spiraliter dispositis instructus. Flores ex axillis pulvillorum juniorum, interdum lana densa instructis, per aliquot dies mane aperti noctuque clausi. Bacca sepalis adnatis plus minusve squamata. Salm-Dyck.

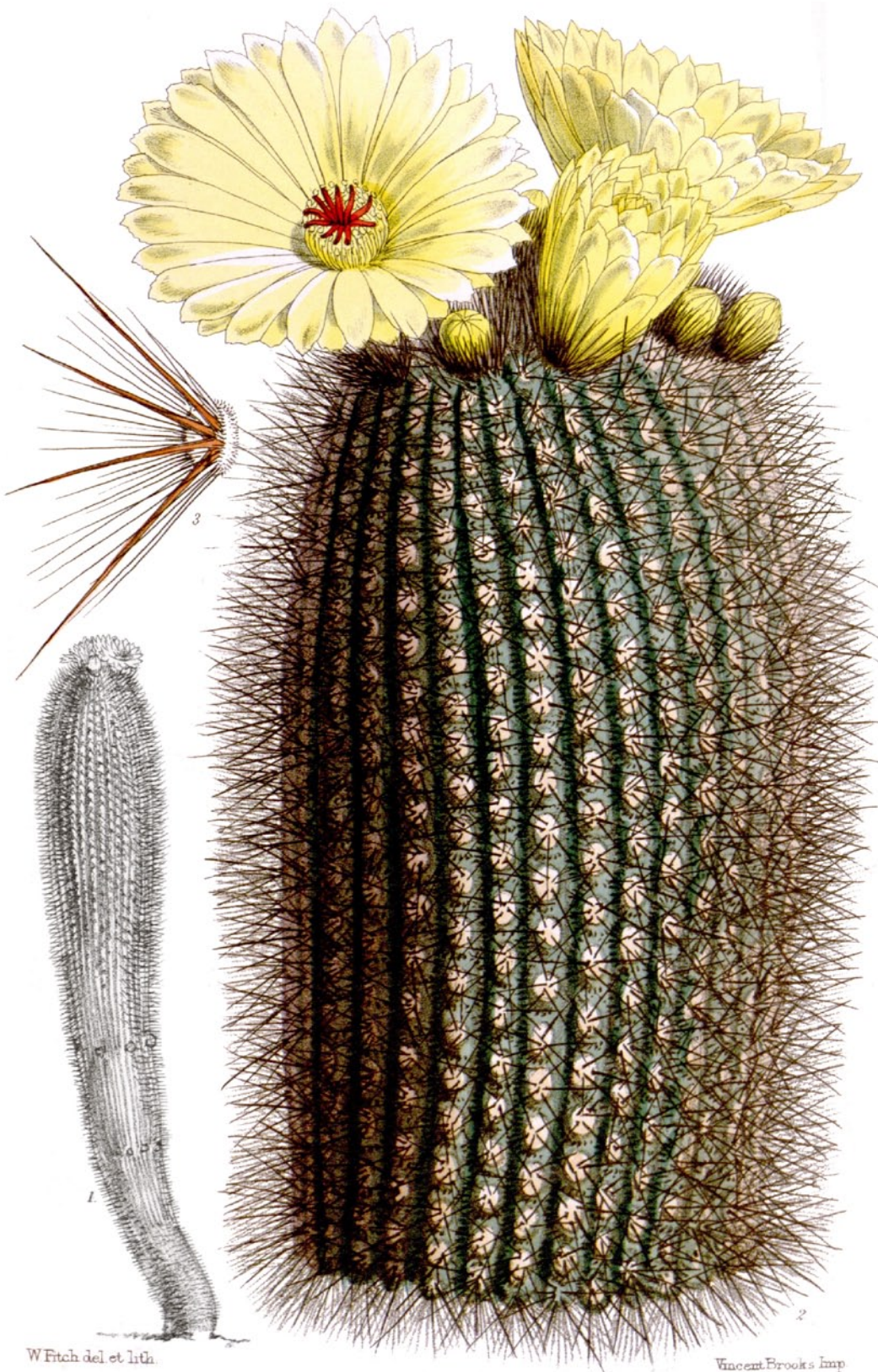
ECHINOCACTUS (§ Microgoni) *Scopa*; erectus. cylindraneo-clavatus, subsesquipedalis, costis 30–36 verticalibus tuberculatis, areolis albo-tomentosis confertissimis, aculeis centralibus 3–4 purpureis subvalidis, radiantibus 30–40 setaceis albis, floribus subcopiosis circa verticem locatis luteis diametro biuncialibus, tubo brevissimo basi aculeis intense purpureis oblecto, petalis biserialibus spathulatis apice subserratis.

ECHINOCACTUS. *Link. Hort. Berol. v. 2. p. 21. "Link et Otto, Icon. t. 41." Lindl. Bot. Reg. v. 24. t. 24. Salm-Dyck, Cact. Hort. Dyck. p. 32. Pfeiff. En. Diagn. Cact. p. 64.*

CEREUS *Scopa. De Cand. Prodr. v. 3. p. 464.*

CACTUS *Scopa. Link, En. v. 2. p. 21.*

A curious cactoid plant, and really handsome of its kind, native of Brazil. Young individuals are of an oval form, but when more fully grown attaining a height of a foot or a foot and a half, quite clavate, furrowed for its whole length, the ridges studded with white cottony pulvilli, from which radiate tufts of long, white, setaceous bristles, mixed with about four, brown or purple, moderately strong aculei. The flowers are very pretty,
MAY 1ST, 1864.



and form a circle around the apex of lemon-yellow colour, with a purple radiating centre, formed by the rays of the stigma. It flowers in June.



Fig. 1. A *much reduced* figure of the entire flowering plant. 2. Summit of the same,—*natural size*. 3. Pulvinulus from a costa, with its setæ,—*magnified*.

(3569)

ECHINOCACTUS SESSILIFLORUS. SESSILE-
FLOWERED ECHINOCACTUS.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

Sepala numerosa imbricata, basi ovarii adnata, in tubum brevissimum concreta, exteriora involucriformia, intima petaliformia. *Stamina* numerosa. *Stylus* filiformis apice multifidus. *Bacca* sepalorum reliquiis subsquamata. *Cotyledones* nullæ?—Frutices *simplicissimi carnosii ovati aut globosi melocactoidei costati aphylli, costis tuberculis conluentibus quasiformatis, dorso aculeorum fasciculos gerentibus*. *Cephalium seu spadix nullus*. *Flores e fasciculis aculeorum ad apices costarum orti, similes floribus Cerei sed tubo vix ullo donati*. D C.

Specific Character and Synonym.

ECHINOCACTUS *sessiliflorus*; parvus depresso-globosus, costis 12 acutiusculis, spinarum fasciculis paucissimis, spinis breviusculis 4—6 subvalidis albis recurvo-patuli, floris tubo brevi, petalis flavis lineari-spathulatis.

ECHINOCACTUS *sessiliflorus*. Hort. Mackie.



Drawn by S. Curtis. Flowering at Exeter April 2 1857.

See also 30

From the Norwich Nursery, whence the charming drawing here engraved was kindly communicated by Messrs. MACKIE. The beautiful, short, white, and distinctly-placed fascicles of spines form a singular contrast with the dark green of the plant, and together with the short and much depressed stem, readily distinguish it from *E. Ottonis*, figured at tab. 3107 of this work. It flowers freely, producing several blossoms every year.

Mr.

Mr. FREDERIC MACKIE, whose skill and experience in Horticulture are very great, observes, that he is very successful in flowering the different species of ECHINOCACTUS, by growing them “very near the glass, and during the summer time, in a very high temperature, by keeping the upper glasses of the house close: strong light and heat being necessary for expanding their blossoms in perfection. Some of them will close immediately upon being removed to a cooler place. It is also very necessary to have the pots well drained, as the roots are liable to decay if the earth is at all sodden with moisture. I think that setting the free growing species in poor soil is quite a mistake, for we invariably find that they thrive better in good soil, *provided it be well drained*, and if they are planted in small pots.”

ECHINOCACTUS STREPTOCAULON.

Spiral-stemmed Echinocactus.

Nat. Ord. CACTEÆ.—ICOSANDRIA MONOGYNIA.

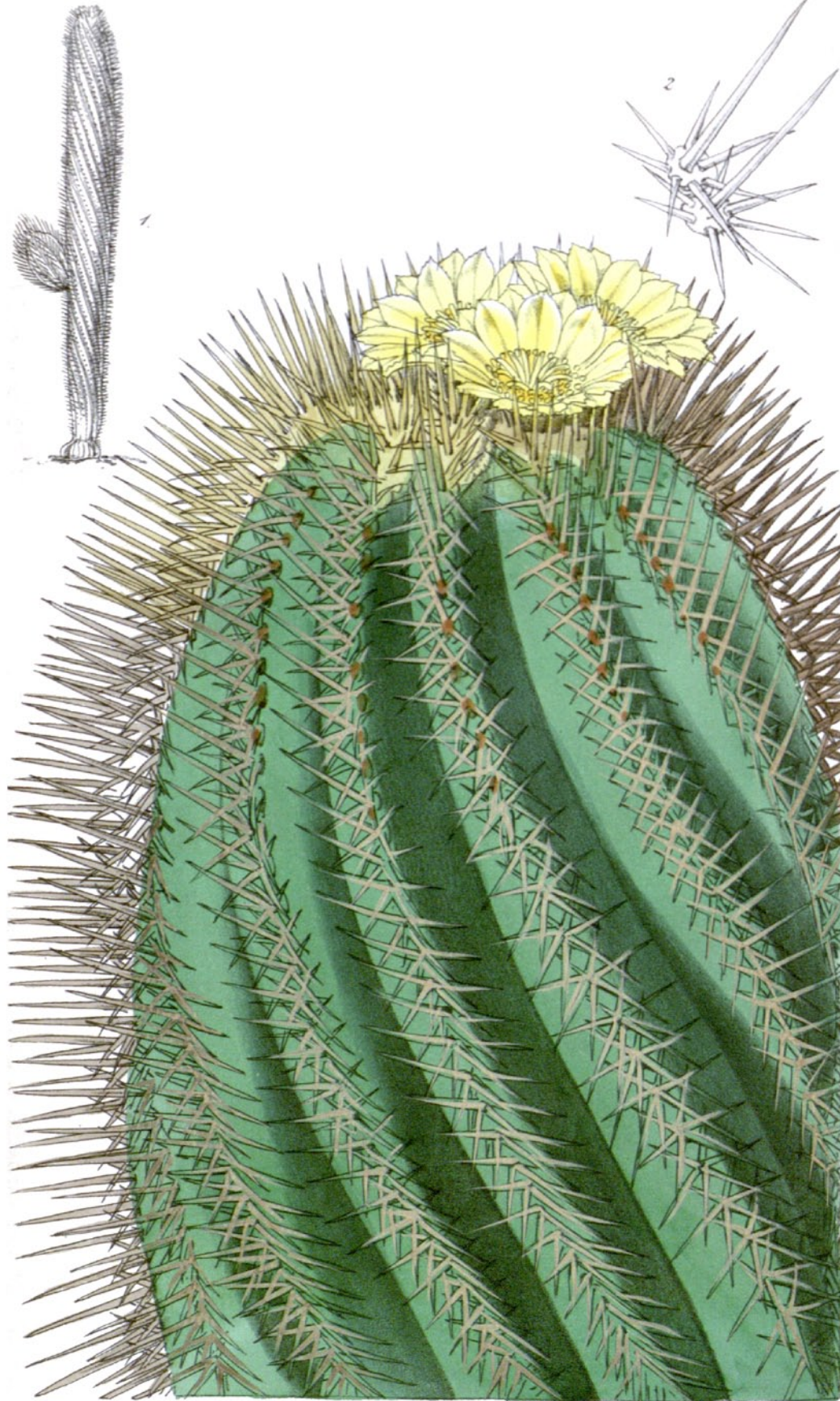
Gen. Char. (Vide supra, TAB. 4124.)

ECHINOCACTUS *streptocaulon*; erectus (sesquipedalis) columnari-cylindræus 12–14-sulcatus spiraliter tortus (nunc proliferus), angulis sulcisque acutis, areolis approximatis nudis (lana nulla) 8-aculeatis, aculeis fuscis rectis 7 patenti-radiatis mediocribus, unico centrali triplo majore verticali, floribus 3–4 terminalibus vix spinas superantibus flavis, petalis spathulato-lanceolatis, stigmatibus 9–12-linearibus staminibus longioribus.

A very distinct species of the genus *Echinocactus*, if we judge from the flowers; but almost a *Cereus* in the elongated habit of the plant, which we purchased from Mr. Bridges, who had brought it from Bolivia. We find nothing like it anywhere described, and have named it from the remarkably spirally twisted character of the stem, without, however, holding ourselves responsible that this is a constant or permanent mark of distinction. It flowered in the Cactus-house of the Royal Gardens, in August 1845.

DESCR. Our *plant* is a foot and a half high, erect, columnar, cylindrical or a little contracted towards the base, occasionally proliferous, obtuse and woolly at the top, the sides fluted with twelve to fourteen spirally twisted, rather acute *ribs*, the *furrows* also acute. *Areolæ* densely crowded, often almost touching one another, and forming a nearly orbicular dark-coloured disc, free from wool, and bearing generally eight straight, palish brown *spines*: of these, seven outer are nearly equal, half an inch long, forming a spreading ray, while from the centre, one spine, twice or thrice the size of the rest, stands out vertically. From the woolly crown on the summit appear three or four yellow *flowers*, scarcely rising above the wool and not so long as the spines, an inch or an inch and a quarter in diameter, entirely of a sulphur-

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yellow. *Petals* lanceolato-spathulate. *Stamens* numerous. *Anthers* subglobose. *Style* as long as the stamens. *Stigma* of many linear spreading rays. *W. H. J.*

CULT. From some peculiarity in the nature of the Cactus region of Chili and Bolivia, we find that *Cacteæ* imported from these countries do not so readily conform themselves to the artificial modes of cultivation to which they are necessarily subjected in this country, as allied species from Mexico. This is more especially the case with the *Echinocacteæ*. We learn that they inhabit very arid and hot places, enduring extreme drought, which is very obvious from the harsh, dry, and often dead-like appearance they present when they arrive in this country. The species now figured was introduced with many others about six years ago, by Mr. Bridges, and on inquiring of him the nature of their places of growth, and what mode he would recommend as best for cultivating them in this country, the point on which he laid the greatest stress was to *give them no water*. But we find that even harsh, dry-looking *Cacteæ* are, like many other dry-climate plants, capable of assuming a freer habit of growth by good treatment; the difference of the growth they make in this country, as compared with that of their native country, is so great, that the top and lower part of the same plant, if separated, might be taken as two distinct species. It is probable that many *Cacteæ* from dry regions, when placed under the influence of a climate more favourable to vegetable development, will assume a different aspect, varying according to the degree of heat and moisture they receive. In habit this species approaches *Cereus reductus*, figured at Tab. 4443, and what is there stated as regards cultivation is suitable for this species. *J. S.*

Fig 1. Reduced plant. 2. Areolæ with spines:—*natural size*.



(3963)

ECHINOCACTUS TENUISPINUS. SLENDER-
SPINED ECHINOCACTUS.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

Sepala numerosa imbricata, basi ovario adnata, in tubum brevissimum concreta, exteriora involucriformia, intima petaliformia. *Stamina* numerosa, calyci affixa, inæqualia, intima brevissima, filiformia, antheris oblongis. *Stylus* cylindricus, subfistulosus, apice multifidus. *Bacca* sepalorum reliquiis subsquamata, rarissime lævis. *Cotyledones* parvula.—Frutices simplicissimi carnosi ovati aut globosi, melocactoides aut mammillariæformes, aphylli, costati aut tuberculati, costis tuberculis confluentibus quasi formatis, dorso aculeorum fasciculos gerentibus. Cephalium seu spadix nullus. Flores e fasculis aculeorum ad apicem costarum (ita quidem, ut in areolis noviter e vertice erumpentibus florum origines jam conspicui sint) orti, similes floribus Cerei sed tubo vix supra receptaculum elongato. Pfeiff.

Specific Character and Synonyms.

ECHINOCACTUS *tenuispinus*; depresso-globosus 12—14 costatus subglaucus, costis obtusis sinibus acutis, areolis albis tomentosis immersis, aculeis gracilibus 12—18 quarum 3—4 duplo longioribus, floribus congestis, petalis (flavis) apice serrulatis acutissimis.

ECHINOCACTUS *tenuispinus*. Link et Otto in *Verhandl. des Gart. Vereins für Pruss.* tab. 19.

ECHINOCACTUS *Ottonis*. β . *tenuispinus*. Pfeiff. *Enum. Cact.* p. 47.

Cultivated in the Royal Botanic Gardens of Kew; where, it must be confessed, that the flowers are very similar to those

those of *E. Ottonis*, of which Dr. PFEIFFER makes it a variety:—but, on the other hand, the form of the plant, a much depressed globe, is quite different from that of *E. Ottonis*, as may be seen by our tab. 3117, where that species is represented. The spines, too, are here much longer, and the native country of the two is very different;—*E. Ottonis* being an inhabitant of Mexico, while *E. tenuispinus* is stated by PFEIFFER to come from South Brazil.

It flowers in July, and makes a pretty appearance with the copious bright lemon-coloured flowers, large in proportion to the size of the plant, and the red stigmas in the centre.



(3627)

ECHINOCACTUS TUBIFLORUS. TUBE-FLOWERED
SPINE-CACTUS.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

Sepala numerosa imbricata basi ovarii adnata in tubum brevissimum concreta, exteriora involucriformia, intima petaliformia. *Stamina* numerosa. *Stylus* filiformis apice multifidus. *Bacca* sepalorum reliquiis subsquamata. *Cotyledones* nullæ?—Frutices simplicissimi carnosi ovati aut globosi melocactoides costati aphylli costis tuberculis confluentibus quasi formati, dorso aculeorum fasciculos gerentibus. Cephalium seu spadix nullus. Flores e fasciculis aculeorum ad apices costarum orti, similes floribus Cerei sed tubo vix ullo donati. D C.

Specific Name and Character.

ECHINOCACTUS *tubiflorus*; subgloboso depresso umbilicato, costis profundis subundecim undulatis compressis, tuberculis lanatis aculeatis aculeis 5—6 lineas longis fasciculatis strictis nigris, floris tubo 6—8 uncias longo superne dilatato fasciculatim villosa, petalis patentibus (albis acuminatis).

ECHINOCACTUS *tubiflorus*. Hort. Angl.-Pfeiff. Enum. Cact. p. 71.

The drawing here figured was kindly communicated under the name now adopted, by Mr. FREDERIC MACKIE, of the Norwich Nursery, in whose collection of CACTEÆ (late Mr. HITCHIN'S) it has lately flowered. Its affinity with *E. Eyrie-sii* will be at once perceived: but from that species it differs remarkably in the fewer and much deeper angles to the

the stem, in the very much longer and stronger and black species, collected into fewer fascicles. The flower, as Mr. MACKIE observes, is larger, the tube longer and slenderer, and clothed with much longer tufts of hairs. It is, in all probability, a native of the same country as E. *Eyriesii*, namely Mexico.

DESCR. *Stem* subglobose, much depressed, umbilicated at the top, and deeply cut into about eleven very prominent, compressed, slightly undulated *angles*, which have five or six woolly *tubercles*, each giving rise to a fascicle of six to eight strong black *spines*, from half to nearly three quarters of an inch long. From one of these fascicles the *flower* springs, which is remarkably large in proportion to the size of the plant. The calycine tube is very long, a little enlarged upwards, brownish-green, scaly, each scale with a long tuft of slender, flaccid hairs. *Petals* spreading, white, oblong, much acuminate. *Stamens* numerous, included, white as well as the *style* and *stigmas*.

ECHINOCACTUS VISNAGA.

Visnaga or *Monster Cactus*.

Nat. Ord. CACTAEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. (*Vide supra*, TAB. 4124.)

ECHINOCACTUS *Visnaga*; trunco maximo late elliptico multangulato sinubus angustis profundis angulis sinuato-tuberculatis, vertice lanatissimo, areolis approximatis rhomboideis umbilicato-immersis glabris pallide fuscis, aculeis validis 4, centrali erecto longo (biunciali), reliquis 3 deflexis brevioribus, floribus copiosis, ovario elongato densissime lanato superne aculeis mollibus sparsis, petalis serratis flavis.

ECHINOCACTUS *Visnaga*, Hook. in *Ill. Lond. News*, for 1846, with a figure, and in *Kew Garden Guide*, ed. 7. p. 53.

ECHINOCACTUS *ingens*, "Zucc." Pfeiff. *Enum. Cact.* p. 54 et 180? *Salm-Dyck, Cact.* p. 27? (name only).

One of the most remarkable plants in the Cactus-house of the Royal Gardens of Kew, and that which chiefly attracts the attention of strangers, is the subject of the present plate. It bears the name of *Visnaga* with us (*Visnaga* means a tooth-pick among the Mexican settlers, and the plant is so called because that little instrument is commonly made of its spines), and under that name, believing it to be a new species, we had described it and it was figured in the 'Illustrated News' for 1846. I had, at one time, been disposed to refer the species to the *Echinocactus ingens*, of which a brief and most unsatisfactory character is drawn up by Pfeiffer (for Zuccarini does not appear to have noticed it) from some "dried flowers," and a living specimen "six inches high," but it can scarcely be that, for the angles of the plant are said to be eight, the aculei nine in a cluster, and the petals obtuse. Our plate, at fig. 1, represents a very diminished figure of a specimen unfortunately no longer existing, but which in 1846 was an inmate of our Cactus-house, and apparently in high health and rigour. Its height was nine feet; and it measured nine feet and a half in circumference: its weight a ton! After a year of apparent health and vigour,

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TAB. 4296.

ECHINOCACTUS WILLIAMSII.

Mr. Williams' Echinocactus.

Nat. Ord. CACTEAE.—ICOSANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 4190.)

ECHINOCACTUS *Williamsii*; humilis caespitosus turbinatus inferne teres transversim cicatricatus cinereo-fuscus superne umbilicato-depressus glaucus 6–8-costatus, costis latis convexis parce tuberculatis inermibus pulvilligeris, pulvillis e pilis fasciculatis densis erectis formatis, floribus parvulis subsolitariis albo-roseis.

ECHINOCACTUS *Williamsii*. "*Lemaire, ex Salm-Dyck in Otto et Dietr. Allgem. Gartenzeit, xiii. p. 385.*" *Walp. Repert. v. 5. p. 816.*

A neatly-formed species, which has a very pretty appearance when its starry blossoms are expanded. We received several plants of it at the Royal Gardens of Kew, through the favour of the Real del Monte Company, from the rocky hills of their district of mines in Mexico, with many other treasures. It flowers in the summer months.

DESCR. Our largest plants do not much exceed the size represented. They grow in a tufted manner and are often prolific, as in the instance here shown: the parent plant being, as it were, stifled or subdued by its offspring. Each individual is turbinate: from the base to the crown, or summit, terete, of an ashy brown colour, and scarred with close transverse lines, occasioned, it would appear, by the progressive withering and contraction of the tubercles: the summit is broadly convex, but with a deep depression in the centre, glaucous, traversed from the centre outwards by 6–8 furrows, and thus divided into as many convex ridges, and these again, transversely, but more or less deeply, into rather large, rounded, more or less confluent unarmed *tubercles*, each of which has a dense tuft or short pencil of compact erect hairs:—no aculei. *Flowers* proceed from a young tubercle, near the centre of the crown. The base of

the *calyx* is downy. The *petals* lanceolate, rather numerous, white, externally tipped with pale green, and having a rose-coloured line down the centre. *Stamens* yellow. *Stigma* of four spreading rays.

TAB. 4567.

ECHINOPSIS CAMPYLACANTHA.

Curve-spined Echinopsis.

Nat. Ord. CACTEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 4521.)



ECHINOPSIS campylacantha; (subpedalis) ovato-globosus, costis 14–16 verticalibus subcompressis obtusis, areolis magnis approximatis ellipticis lanatis, aculeis subulato-acicularibus rigidissimis flavicantibus apice brunneis exterioribus 8–10 radiantibus rectiusculis (uncialibus et ultra) centrali longissima (3-unciali) sursum curvata, calycibus infundibuliformibus sparsim squamosis, squamis hirsutissimis.

ECHINOPSIS campylacantha. Pfeiff. in *Salm-Dyck, Cact. Hort. Dyck*, p. 39.

ECHINOCACTUS leucanthus. Gill. in *Bot. Reg.* 1840. t. 13 (not *E. leucacanthus*, Zucc.)

CEREUS leucanthus. Pfeiff. *Enum. Cact.* p. 71.

A fine and well-marked species, with handsome flowers, readily distinguished by the great length of the central spine of the areolae, and by its taking an upward and inward curve, a direction to which the other radiating spines are more or less inclined. It is a native of the Argentine province of Mendoza, at the eastern foot of the Andes, where it was discovered by the late Dr. Gillies, and introduced by him to our Gardens, with many others from that region, which we fear are now mostly lost to us. It flowers in the spring and summer months.

DESCR. Our *plants* are, the largest of them, a foot high, in shape between ovate and globose, not unlike that of a pineapple, rather acute at the top, longitudinally furrowed: *ridges* fourteen to sixteen, considerably elevated, scarcely compressed, obtuse; the edges slightly tubercled or lobed. *Areolæ* approximate, large, oval, woolly, bearing from eight to ten strong but rather slender *spines*, generally tawny, tipped with dark brown:—of these eight to ten form the circumference and spread in a stellated manner, yet having a slight curve upwards, an inch or rather more long; the central spine is solitary, nearly three inches long, and has a remarkably upward curve towards

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the apex of the plant. *Flowers* from the areolæ near the summit of the plant, about six inches long. Calycine *tube* funnel-shaped, oliv-green, bearing many scattered woolly *scales*; the segments of the limb gradually passing into the spreading, acute, pale rose-coloured *petals*. *Stamens*, very numerous, compact. *Style* included. *Stigma* of about twelve linear, elongated rays. *W. J. H.*

CULT. The observations respecting the culture of *Echinocactæ*, given at Tab. 4521 and Tab. 4562, are applicable to this species. *J. S.*

Fig. 1. Rays of the stigma:—*magnified*. 2. Entire plant:—*much reduced*.





TAB. 4687.

ECHINOPSIS CRISTATA.

Crested Echinopsis.

Nat. Ord. CACTACEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. (Vide supra, TAB. 4521.)

ECHINOPSIS *crsitata*; caule depresso-globoso nitido viridi 17-costato, costis compressis inter pulvillos valde cristatim obrepandis, pulvillis immersis sub-confertis griseo-tomentosis, aculeis rigidis exterioribus 10 recurvato-patentibus summo cum centrali solitario longioribus erecto-recurvulis. Salm-Dyck.

ECHINOPSIS cristata. *Salm-Dyck, Cactæ in Hort. Dyck. Cult. pp. 38, 178.*

ECHINOCACTUS obrepandus. *Salm-Dyck, A. G. Z. 1845, p. 386.*

Var. *β. purpurea*; floribus purpurascentibus. Echinopsis cristata, *var. prpurea. Bot. Mag. t. 4521.*

This, as well as the purple-flowered variety of it, were imported by Mr. Bridges from Bolivia (not Chili, as stated by Mr. Smith, in Bot. Mag. under Tab. 4521). The latter is already figured in the plate just cited, and we scarcely know which is the more striking of the two. The purple-flowered variety has the advantage in the colour of the flower, but, the present kind produces the largest blossoms; the petals are broader in proportion to their length, a cream-white gradually passing into the greenish-purple of the outer sepals. The spines in the present variety are more slender, less curved, of a paler colour, but tipped with a darker brown. In other respects the two plants correspond, and a full description under Tab. 4521 will equally suffice for the present. Its flowering season is July.

Echinopsis, as we there observed, is a genus recently separated from *Echinocactus* by the Prince de Salm-Dyck, in which twenty species are included in the recently published 'Cactæ in Horto Dyckensi cultæ,' etc., and these are divided into two principal but very unequal groups: "1, TUBERCULATÆ: tuberculis

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cristatis, compressis, elongatis, in costas oblique subconfluentibus,” to which belongs our *E. cristata*, now figured, *E. Scheerii*, Salm-Dyck, our *E. Pentlandii*, Bot. Mag. t. 4124, *Echinopsis pulchella*, Zuccarini, *E. amœna*, Dietr.; the rest are included under the second division, “2, COSTATÆ: costis continuis, minusve munerosis, repandis vel subrepandis,” and to this belong *E. Eyriesii* Bot. Mag. t. 3411, *E. oxygona*, Bot. Mag. t. 4162, *E. multiplex*, Bot. Mag. t. 3789, *E. Zuccariniana* (*Echinocactus tubiflorus*, Bot. Mag. t. 3627), *E. campylacantha*, Bot. Mag. t. 4567. They are all remarkable for the great size and long tube of the flowers in comparison with the stem. They are assuredly among the handsomest of the family of *Cactaceæ*.



Our Plate represents a reduced figure of an entire plant, and an apex of a plant with a flower:—*natural size*.





TAB. 4521.

ECHINOPSIS CRISTATA; *var.* PURPUREA.*Crested Echinopsis; purple lowered var.*

Nat. Ord. CACTACEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. Echinopsis, Zucc.—*Perigonii tubus* ultra germen longe productus, pulvilligerus; phylla numerosissima, sepaloidea infima squamiformia, superiora elongata spiraliter imbricata in axillis setigera, petaloidea longiora, plus minusve patentia, corollam lato-infundibuliformem vel subcampanulatam æmulantia. *Stamina* biserialia, serie una fundo tubi inserta et versus perigonii limbum anticum fasciculatim convergente, serie altera cum toto tubo connata et orificio tubi quasi circulatim inserta. *Stylus* filiformis stamina vix superans. *Stigma* multiradiatum, radiis linearibus. *Bacca* squamata, squamarum axillis setosis. *Cotyledones* connatæ, minutæ, globulosæ.—*Caulis carnosus, depressus, globosus vel subcylindraceus, vertice nunquam lanigero, costis plus minuve numerosis instructus verticaliter continuis (repandis, obrepandis, vel crenulatis), aut interruptis (tuberculis pulvilligeris oblique subdistinctis).* Aculei brevissimi vel elongati, recti vel curvati. Flores semper laterales, erecti, per aliquot dies noctu dieque aperti. Gemma florifera pilis sericeis, plerumque nigris, dense vestita est. *Salm-Dyck.*

ECHINOPSIS *cristata*; caule depresso-globoso nitido viridi 17-costato, costis compressis inter pulvillos cristatim obrepandis, pulvillis immersis subconfer-tis griseo-tomentosis, aculeis rigidis exterioribus 10 recurvato-patentibus summo cum centrali solitario longioribus erecto-recurvulis. *Salm-Dyck.*

α. Flore albo.

ECHINOPSIS *cristata*. *Salm-Dyck, Cactæ in Hort. Dyck. cult.* pp. 38 and 178.

ECHINOCACTUS *obrepandus*. *Salm-Dyck, A. G. Z.* 1845. p. 386.

β. Flore purpureo. (TAB. NOSTR. 4521.)

Specimens of this fine plant, no less remarkable for the large size of its flowers than for the deeply-lobed ribs of the stem, were purchased of Mr. Bridges on his return from Bolivia, where he had gathered them and other fine species of *Cactaceæ* then first known in our gardens, in 1844. In 1846, the individual which blossomed, and which is here represented, produced purple flowers; that which bloomed the following year (1847) bore white ones. The latter we look upon as identical with the *Echinopsis cristata* of Salm-Dyck. The genus *Echinopsis*, if genus it really be, is placed in a distinct tribe, *Cereastreæ*, from *Echinocactus*, which is in *Echinocactæ*: the former being characterized by having *the flowers lateral, the tube of the peri-*
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gone generally elongated: the latter having the flowers arising from the vertex of the stem, and the tube of the perigone generally short. July has been with us the season of flowering.

DESCR. Our largest specimen is about seven inches in diameter, globose, but depressed and rather deeply umbilicated at the top, full green (not glaucous), somewhat glossy, deeply furrowed, the ribs about 17–18, nearly straight, much compressed, notched at nearly equal intervals, and thus divided into a number of very obtuse rounded lobes (crested). *Pulvinuli*, or collections of down, in the notches, from which also diverge 10–12 slightly curved, strong, large, and unequal *spines*, or *aculei*, the uppermost one and central one rather the longest and strongest, all of a dull-brown colour. *Flowers* very large, 2–4 from a plant, arising from near the summit and from one of the pulvilli, funnel-shaped, the *tube* six inches long, green, bearing numerous acuminate scales, fringed with rather copious woolly black hair, uppermost scales longer, gradually passing into sepals, and those again into numerous oblong, spreading, rose-coloured *petals*, serrated and mucronate at the point. *Stamens* numerous, inserted at the mouth, yellow. *Anthers* small. *Style* reaching to the mouth of the flower, and bearing the numerous long, woolly, slender *rays* of the *stigma*.

CULT. This showy *Echinopsis* is a native of Chili, and, like its Mexican allies, thrives if potted in light loam with a little leaf-mould and a few nodules of lime-rubbish. The latter are for the purpose of keeping the soil open; it is also necessary that the pot should be well drained. In winter, water must be given very sparingly and the atmosphere of the house should be dry: the temperature need not exceed 50° during the night, and in very cold weather it may be allowed to fall 10° lower, provided a higher temperature be maintained during the day. As the season advances the plants should receive the full influence of the increasing warmth of the sun; and during hot weather they will be benefited by frequent syringeing over-head, which should be done in the evening: it is, however, necessary to guard against the soil becoming saturated, for the soft fibrous roots suffer if they continue in a wet state for any length of time. *J. S.*

Fig. 1. Plant, on a very reduced scale. 2. Flowering portion :—*nat. size.*



(3717)

EPIPHYLLUM RUSSELLIANUM. THE DUKE
OF BEDFORD'S EPIPHYLLUM.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

Sepala calyciformia, ovario nudo adnata, exteriora breviora, media longiora reflexa, intima petaliformia in tubum concreta, orificio obliquo (vel æquali). *Stamina* filiformia (circa 100) medio breviora receptaculo, exteriora longiora tubo affixa, limbo multo longiora. *Stylus* filiformis, stigmatibus paucis, vix expansis. *Bacca* et germinatio ignotæ.—Frutices *carnosi articulati, articulis alatis subtruncatis, sub-inermibus, apice tomentoso interdum spinuloso, ramosis et floriferis*. Flores *speciosi hiemales, forma singulari*. Receptaculum pyriforme in sepala 8 vera breviora imbricata virenti-rubella abiens; sequuntur sepala 5 vivide colorata, petaliformia, reflexa, tubi basi affixa. Orificium tubi obliquum, (vel æquale) ex 9 petalis compositum, quorum 4 suprema suberecta, 5 inferiora maxime reflexa. Pfeiff.

Specific Character and Synonym.

EPIPHYLLUM *Russellianum*; suberectum, articulis obovatis truncatis utrinque obtusissime 1-dentatis dentibus fasciculatim pilosis, corollam petalis æqualiter patentibus, ovario 4- (5) alato, staminibus seriei interioris basi monadelphis.

CEREUS *Russellianus*. *Gardner MSS.*

This beautiful species of EPIPHYLLUM is common on the stems of trees, and occasionally upon rocks on the Organ Mountains of Brazil. Its nearest affinity is to EPIPHYLLUM *truncatum*, that favorite ornament of our stoves, the habit and

and general appearance of the two plants being quite similar; but besides the minor differences mentioned below, the present is abundantly distinct as a species, having a straight and regular (not oblique irregular) flower, and a four-winged (not wingless) ovary; thus affording a good example of closely allied species, representing each other in different regions or elevations; The *E. truncatum* I have never observed growing at a greater height on the mountain than about four thousand five hundred feet; while above that line, and to an elevation of nearly six thousand feet, nothing but *E. Russellianum* is to be found.

The brilliant flowers are produced in the month of May, and had not my visits to the Organ Mountains been fortunately made at that season, I certainly should have passed by this species as *E. truncatum*. *G. Gardner*.

(We can readily participate in the pleasure Mr. GARDNER must have experienced in discovering this beautiful Epiphyllous plant and dedicating it to his distinguished patron, the Duke of Bedford, a nobleman, who, in the short time of Mr. GARDNER's absence (scarcely three years) has amassed such a collection of Cactoid Plants at Woburn Abbey, as must seem to be at with which in the kingdom, that I know of, can be compared, except it be that of _____ HARRIS, Esq., of Kingsbury, near Hendon. In the stoves at Woburn, the great columnar kinds of *CEREUS*, thirty feet high, (and, especially the noble specimens of *C. senilis* two of which have attained to twelve feet, and are clothed with long, pendent white hairs) contrast admirably with the strangely broad and depressed forms of the *MELOCACTUS* and *ECHINOCACTUS* group, beset, too, as these are, with spines of every shape and size and colour:—again, the latter kinds present a most curious difference of aspect from the flattened and jointed stems of the *OPUNTIAE* and *EPIPHYLLA*; while the magnitude and fragrance of the blossoms of some, and the brilliancy of colour in others, are surpassed by few vegetable productions. The arrangement and high health and vigour of the plants at Woburn reflect the utmost credit on the able gardener, Mr. FORBES.*

Of

* While writing the above, information has just been received from Mr. PARKINSON, Her Majesty's Consul General in Mexico, of the despatch of another valuable addition to His Grace's princely collection; including among other things, specimens of *CEREUS senilis*, still larger than those above

Of the *EPIPHYLLUM* here represented, we have received an excellent drawing, made by Mr. GARDNER's kind friend, Mr. MIERS, in Brazil, and that gentleman did not fail to observe all the characters which specifically distinguish this handsome plant from its congeners; especially the inner circle of monadelphous stamens figured at No. 1 of our plate. Its discovery is thus alluded to in a letter from Mr. GARDNER.

“Through dense masses of large bamboos, with stems often more than half a foot thick, and sixty or seventy feet high, we had to cut our way up the Organ Mountains, till we came, after a toilsome day's journey, to a small waterfall, where we encamped for the night. On the trunks of the larger trees, growing near this spot, I saw abundance of *EPIPHYLLUM truncatum* beautifully in flower, and higher up on the mountain, the next morning, found a lovely new species, belonging to the same group as *E. truncatum*, and much resembling it in many points; equally large, but with a more graceful mode of growth, and brighter-coloured blossoms. The stamens too are uniformly pink, and not white, as in *E. truncatum*.

“I am sure you will be delighted with it, and I do trust, if ever I am spared to return to England, that I shall see it there as universally cultivated, as the species to which it is so nearly allied. It gives me great pleasure to dedicate this discovery to my liberal patron, His Grace the Duke of Bedford; and I hope you will agree with me in thinking that its beauty renders it worthy to bear such an illustrious name. In my list you will find it marked *CEREUS Russellianus*.”

The description which follows is from Mr. GARDNER's pen, who drew it up from living specimens on the spot. (*W. J. H.*)

DESCR. *Plant* an *EPIPHYTE*, from one to three feet high, usually growing on the mossy stems of trees. Root of several large, divaricating *branches*, which gradually become much

above mentioned, and two allied kinds, doubtless new species, one being described as downy and the other spinous. The collection also contains a most remarkable *MAMMILLARIA*, of such extraordinary dimensions, as to weigh 2 cwt.; and which it required the united strength of eight Indians to convey to the waggon, on which it was brought from a distance of one hundred miles to Mexico. The flower is yellow, and after being placed on the waggon, it showed several opening buds. The fruit of this gigantic species is well flavoured, but slices of the green plant itself are made into a sweet-meat, which has much of the taste of preserved citron.

much divided, and run in all directions round the trunk of the tree to which the plant has attached itself. *Stem*, of the largest individual which I have met with, four inches and a half in circumference, round, jointed; joints about an inch in length, a little thicker at their extremities than in the middle, covered by a grayish-brown epidermis. *Branches* also composed of oblong, leaflike joints, from an inch to an inch and a half in length, those at the lower part being thicker and of a more woody texture than the upper ones. *Joints* with two serratures on either side, from each of which arises a small fascicle of hairs. The upper margin is rounded at the corners, and truncated; in the young branches furnished with small fascicles of hairs. *Flower* regular, arising from the truncated extremities of the branches, two inches and a half long, of a delicate deep pink colour. *Sepals* numerous, imbricated; the lower ones small, ovate, the upper lanceolate, their united bases forming a pink-coloured tube, the upper half spreading. *Stamens* numerous, a little longer than the calycine tube, arising in two distinct series from the top of the ovarium—those of the external row attached for nearly half of their length to the tube of the calyx,—the internal row united at their bases by a short membrane which forms a tube round the style. *Filaments* filiform, of the same colour as the flower. *Anthers* oblong, two-celled, of a deep pink colour before bursting, at maturity yellowish as is also the *pollen*. *Ovary* inferior, obovate, short, four-winged, smooth, of a pale green colour: *style* filiform, straight, of the same hue as the flower, a little longer than the stamens: *stigma* clavate, consisting of seven short, connivent segments (five cohering by a glutinous juice into a kind of cup. *Miers*). *Ripe fruit* I have not seen; in the green state it is one-celled, many-seeded; the *seeds* attached to parietal placentæ. *G. Gardner*.

Fig. 1. Pistil and inner circle of Stamens. 2. Section of the Germen:—*magnified*.



(3763)

LEPISMIUM COMMUNE. COMMON LEPISMIUM.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

Sepala ovario subnudo pyriformi adnata, in tubum brevissimum concreta, exteriora 4—5 subimbricata, interiora 5—7 petaliformia, lanceolata, acuta, recurvato-patula, alba vel rosea. *Stamina* filiformia pluriserialia, externa longiora, petalorum basi adnata, antheris minutis reniformibus. *Stylus* crassiusculus columnaris, staminibus intimis longior. *Stigma* 4—5-radiatum. *Bacca* subglobosa, lævis, calyce marcescente coronata. *Semina* in pulpa nidulantia. *Cotyledones* latæ, acuminatæ, foliaceæ.

Specific Character and Synonyms.

LEPISMIUM *commune*; articulatum erectum subradicans læte viride 3—angulare, costis valde compressis repandocrenatis ad crenas squama ovata acuta pilisque numerosis albis instructis. *D C.*

LEPISMIUM *commune*. Pfeiff. "in Otto, Gz. 1835. n. 40." *Enum. Cact.* p. 138.

CEREUS squamulosus. Salm, in *D C. Prodr.* v. 3. p. 469.

CEREUS *elegans*. Hort.

The Glasgow Botanic Garden owes the possession of this plant to Mr. HITCHIN, a well-known and highly-successful cultivator of succulent plants, who probably received it from the Prince de SALM DYCK. It is said to be a native of Brazil. Its flowering season is October. As a Genus, I fear the characters are very slight. The flowers seem to me to be altogether those of RHIPSALIS, and the habit very similar to *R. ALATUS*, PFEIFF. (*CACTUS alatus*, Bot. Mag. t. 2820,)

2820), only that the latter plant is compressed or two-angled; as is indeed the *LEPISMIUM paradoxum*, PFEIFF.

DESCR. The *stem*, in our plant, is about two feet long, articulated, branched, the joints elongated, very unequal, below small, scarcely three-fourths of an inch in the greatest diameter, whereas the upper and younger shoots measure two inches across: all of them are elongated, but various in length, tri-angular, full green, the angles much compressed and deeply sinuato-serrate: at the apex of the serrature, or tooth, is a membranous point, or scale; and within it a cavity filled with a tuft of erect, protruded bristles. In the lower and older parts of the stem, the serratures and scale are less distinct, the hairs or bristles are fewer, more protruded and black. In the cavities, thus situated, of the younger and large articulations, the *flowers* appear: these are small and partly immersed. *Germen* minute, inferior, naked. *Sepals* small, petaloid, uniting into a very short tube, gradually passing into the large, oblong-lanceolate, slightly reflexed *petals*, of a greenish-white colour slightly tinged with purple. *Stamens* numerous, unequal, shorter than the petals. *Style* as long as the petals. *Stigma* four-partite.

Fig. 1. Flower, *magnified*. 2. An Areola, whence a Flower has been removed, *magnified*.



(3755)

LEPISMIUM MYOSURUS. MOUSE-TAIL LEPIS-
MIUM.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

Sepala ovario subnudo pyriformi adnata, in tubum brevissimum concreta: *ext.* 4—5 subimbricata; *int.* 5—7 petaliformia, lanceolata, acuta, recurvo-patula, alba v. rosea. *Stamina* filiformia, pluriserialia, externa longiora, petalorum basi adnata; antheris minutis reniformibus. *Stylus* crassiusculus, columnaris, staminibus intimis longior. *Stigma* 4—5-radiatum. *Bacca* subglobosa, lævis, calyce marcescente coronata. *Semina* in pulpa nidulantia. *Cotyledones* latæ, acuminatæ, foliaceæ. *Pfeiff.*

Specific Character and Synonyms.

LEPISMIUM* *Myosurus*; diffuso-suberectum subarticulatum, articulis elongatis gracilibus 3—4-gonis, marginibus acutis crenulatis purpureis, crenulis subremotis albopilosis, squamula foliacea suffultis. *Pfeiff.*

LEPISMIUM *Myosurus*. *Pfeiff. Enum. Cact.* 1. 139.

CEREUS tenuispinus. *Haw in Phil. Mag.* 182.

CEREUS *Myosurus*. *Salm-Dyck in De Cand. Prodr.* v. 3. p. 469.

CACTUS tenuis. *Schott.*

A native of Brazil, according to Dr. PFEIFFER. It flowered in July of the present year, in the collection of
T. BROCKLE-

* Λεπύς, *a scale*: so named, I presume, from the little scale at the crenatures.

T. BROCKLEHURST, Esq., of the Fence, near Macclesfield; and was communicated by the intelligent gardener there, Mr. J. APPLEBY, with the following remark:—"The plant had been for some time in a greenhouse, and was thence removed to the Orchideous house. In conveying it thither, a portion of about half the length broke off, and as we had no room for more than one plant, the branch herewith sent was laid unintentionally upon some other large pots with plants in them, and in that situation it has, to our astonishment, thrown out abundance of flowers, while the parent stock still remains barren." It is indeed well known, with regard to the CEREUS group, that bending or slightly injuring a branch favours the blossoming.

DESCR. *Stems* weak, several feet in length, much branched, throwing out copious roots, jointed, the joints elongated, varying in length from three or four inches to a foot, and in width from half to three quarters of an inch, sharply three, rarely four-angular, the angles compressed, often edged with brown or purple, and remotely crenate: a scale at the crenatures, and a long slender tuft of white hairs. *Flowers* rather small, from within the scale at each crenature; yellow, tinged with red (rose-coloured, according to PFEIFFER). *Stamens* erect. *Style* as long as the stamens. *Stigma* of three spreading, woolly rays.

Fig. 1. Flower:—magnified.



TAB. 4393.

LEUCHTENBERGIA PRINCIPIS.

Noble Leuchtenbergia.

Nat. Ord. CACTEAE.—ICOSANDRIA MONOGYNIA.

Gen. Char. *Sepala* numerosa basi ovario adnata, in tubum elongatum concreta, exteriora breviora, calycinalia sparsa, media longiora subcolorata, intima petaliformia. *Stamina* numerosissima cum tubo concreta; *stylus* crassus columnaris; *stigma* radiis recurvatis subdecem. *Ovarium* uniloculare: *ovulis* numerosissimis parietalibus.—*Frutex* carnosus, inferne sublignosus, elongato-cylindraceus, spiraliter mammillosus, mammillis valde elongatis foliiformibus (3–4-uncialibus) acute triquetris truncatis, (inferioribus deciduis et tunc caudex. cicatricatus) apice longe glumaceo-spinosis, spinis exterioribus brevioribus subdecem, centrali longissima basi triquetra.

LEUCHTENBERGIA *Principis*.LEUCHTENBERGIA *Principis*, *Hortulan*.

Few persons, we think, on viewing this plant when destitute of flower, would imagine it to belong to the *Cactææ*. The mammillæ have rather the appearance of the leaves of some Aloid plant, while the stem, looking as if formed of the persistent bases of old leaves, resembles that of some *Cycadææ*. The blossom, however, if nothing else does, betrays its real character; for it differs in no particular from that of *Cereus*. The whole habit of the plant is, however, so unlike any other Cactaceous plant, that for consistency's sake, if *Cereus* and *Echinocactus* are natural and good genera, this will constitute a genus apart; and I willingly adopt a name by which this plant is said to be known upon the Continent, although I have failed to find the place where any such name is recorded. Our plants were obtained for us from the neighbourhood of Rio del Monte, Mexico, through the favour of John Taylor, Esq. It flowers in the summer months.

DESCR. Our largest *plant* is a foot high, its main *trunk* erect, but crooked, as thick as a man's arm, clothed with the dense mass of the persistent bases of old mammillæ, or perhaps rather of the withered mammillæ themselves, shrunk and reduced to a mass of closely pressed scales; above they gradually appear more

SEPTEMBER 1ST, 1848.

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perfect, at first short and truncated, till the crown of the plant is clothed with perfectly formed *mammillæ* resembling aloid leaves, four or five inches long, glaucous green, succulent, triangular, truncated at the apex, and there bearing six or seven long chaffy, or almost horny, linear-subulate, flexuose scales, of which the central one is about as long as the *mammillæ*, and the others, forming a whorl round the centre, are about two or three inches long, spreading, triangular below. These appear to be after a time deciduous, for the lower withered *mammillæ* are destitute of them. From near the centre of the summit of the plant the *flowers* appear, solitary, from the axil of a *mammilla*, large, sulphur-yellow. *Calyx* formed of a number of imbricated, oblong, greenish scales, gradually passing upwards into longer and more coloured scales, till they spread into a long ray of numerous, yellow, acute, linear, glossy *petals*, giving four inches and more to the diameter of the blossom. *Filaments* numerous, pale yellow, arising from below the base of the petals: *anthers* subglobose, orange. *Style* as long as the stamens: *stigma* of nine, spreading, downy, subulate *rays*, recurved at the points.

Our plate represents a much reduced figure of our largest flowering specimen, and the upper portion of a plant:—*natural size*.

MAMMILLÁRIA ATRÁTA. DARK-GREEN
MAMMILLARIA.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

Calycis tubus ovario adhærens, lobi 5—6 colorati fructum juniorem coronantes. Petals 5—25 a calyce vix distincta, eo longiora et cum sepalis in tubum concreta. Stamina filiformia plurisepalia. Stylus filiformis. Stigma 3—7-fidum radiatum. Bacca lævis oblonga. Semina nidulantia. Cotyledones minuta acuminata.—Suffrutices *carnosi subrotundi aut cylindracei, lactescentes aut succo limpido repleti, aphylli, tuberculis subconicis mammæformibus spiraliter dispositis, apice spinulas radiantes et tomentum demum deciduum gerentibus obtecti. Flores inter basin mammillarum sessiles, sæpius in zonam transversam dispositi. Bacca obovata edulis, calyce marcescente demum deciduo, coronata. Pfeiff.*

Specific Character and Synonym.

MAMMILLARIA *atrata*; simplex ovali-cylindracea, crassa, mammillis grossis conicis subobtusis inferioribus compressis apice obtusis, areolis albo-villosis setosis, aculeis semiuncialibus rigidiusculis strictis subæqualibus patentibus rufis demum albis, floribus sub apice insertis copiosis, petalis subæqualibus patentibus.

MAMMILLARIA *atrata. Hort. Mack.*

A beautiful plant, from the choice collection of Mr. MACKIE, at Lakenham, near Norwich, where, by that gentleman's skilful management, it flowers in very high perfection. It will be seen by PFELFFER's useful "Enumeratio Cactcarum,"



Cactearum,” that he refers the MAMMILLARIA *atrata* of gardens to the M. *rhodantha*, LINK and OTTO, “Hortus Berolinensis;” but from that our plant is wholly different; nor do I find it characterized in any work to which I have access. The drawing was kindly communicated by the Messrs. MACKIE; but the native country does not appear to be ascertained; though probably Chili, from whence it is well known that Mr. HITCHIN, the former possessor of Mr. MACKIE’s collection, received many excellent CACTEÆ. As I have not had the advantage of seeing the living plant, I abstain from offering any description, which could no way illustrate so excellent a figure as that which is here given.

TAB. 4358.

MAMILLARIA CLAVA.

Club-shaped Mamillaria.

Nat. Ord. CACTEÆ.—ICOSANDRIA MONOGYNIA.

Gen. Char. Calycis tubus ovario adherens; lobi 5–6 colorati fructum junio-rem coronantes. Petala 5–25 a calyce vix distincta, eo longiora et cum sepalis in tubum concreta. Stamina filiformia, pluriserialia. Stylus filiformis. Stigma 3–7-radiatum. Bacca lævis oblonga. Semina nidulantia. Cotyledones minutæ, acumi-natæ.—Suffrutices carnosi subrotundi, aut cylindracei, latescent, a succo limpido repleti, aphylli, tuberculis subconicis mammiformibus spiraliter dispositis, apice spinulas radiantes et tomentum deciduum gerentibus obtecti. Flores inter basin mamillarum sessiles, sæpius in zonam transversam dispositi. Bacca obovata, edulis, calyce marcescente, demum deciduo, coronata. Pfeiff.

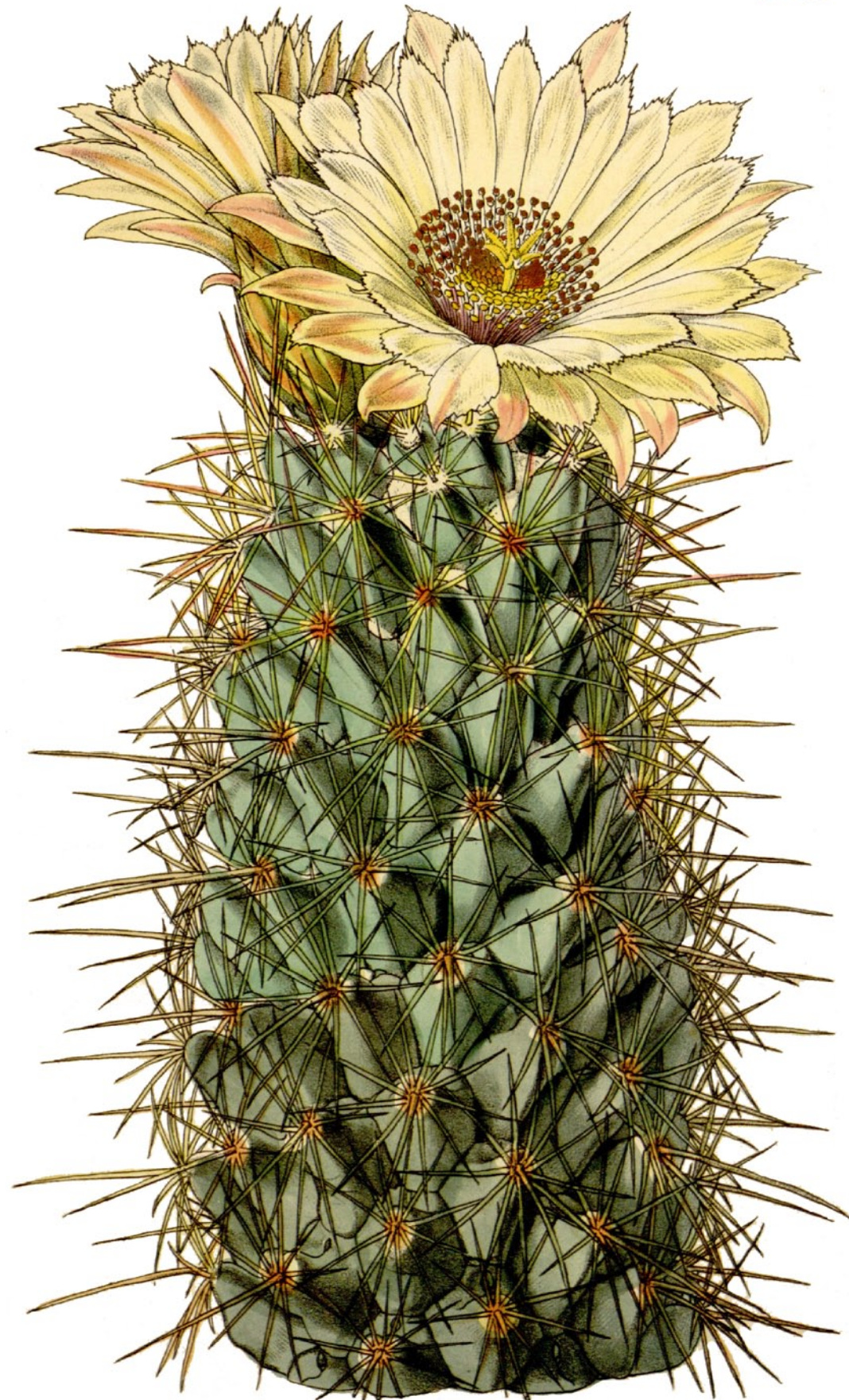
MAMILLARIA Clava; simplex erecta clavato-columnaris glauco-viridis, axillis tomen-tosis, mamillis undique insertis maximis elongatis angulato-pyramidatis erecto-patentibus, areolis terminalibus tomentosis, aculeis rectis elongatis corneis radiantibus 8–11–12, centrali 1 longiore robustiore, floribus termi-nalibus 2–3 majusculis, petalis stramineis apicibus serratis apiculatis exterio-ribus rubescentibus.

MAMILLARIA Clava. "Pfeiff. in Otto et Dietr. Allgem. Gartenzing. v.8. p. 282."
Walp. Repert. Bot. v. 2. p. 259.

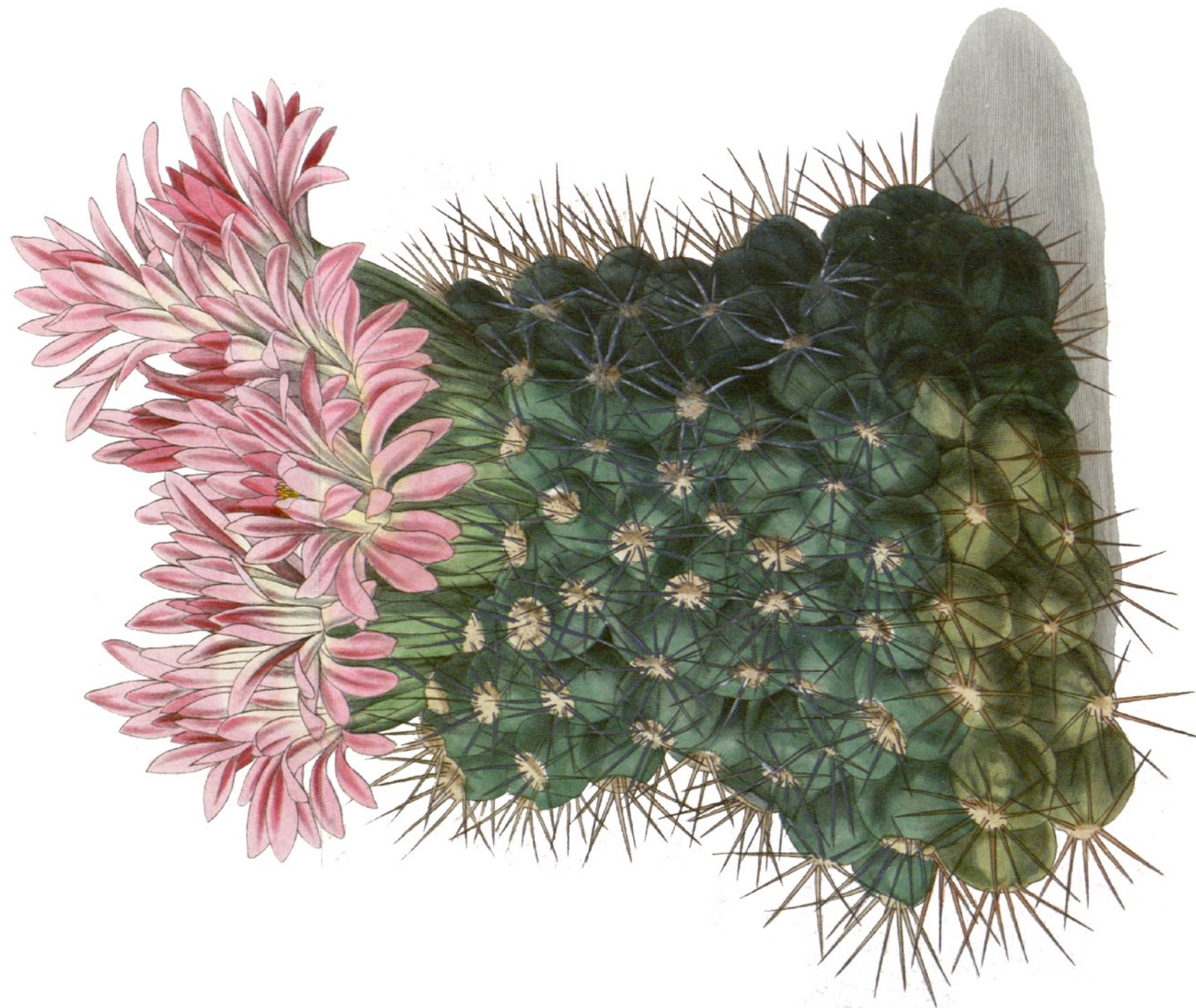
A very striking species of *Mamillaria*, remarkable for its co-lumnar rather than clavate form, its very prominent mamillæ and large, glossy, straw-coloured flowers. It was received at the Royal Gardens of Kew under the name here retained, though it does not entirely correspond with the brief character of the plant given by Walpers, of which, moreover, the flowers seem to be unknown to the author. Still I preserve the name; or upon similar grounds, almost every species of the genus might be discarded; so difficult is it in words to define the characters of these strange and curious plants. It flowers in June.

DESCR. Our specimen of this plant is a foot high, columnar, simple, of a glaucous green colour, studded as it were on all sides with large, projecting, and ascending *mamillæ*, of a py-ramidal form, with bluntly angled sides, densely downy with white wool in the axils: the *areolæ* terminal or subterminal, woolly, and bearing besides from eight to eleven straight,

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spreading, long, rigid *spines*, of a pale brown colour, and a single longer and stronger central one. From the extremity of this plant the *flowers* appear, two or three, large, handsome, showy: the base is occupied by green, imbricated scales, tipped with red, considered the calyx, and then gradually pass into the copious, spreading, straw-coloured, glossy, linear-oblong, or subspathulate *petals*, serrated and mucronated at the apex; of which the more exterior, however, are entire and tinged with dull red. *Stamens* numerous, orange colour. *Style* rather longer than the stamens: rays of the *stigma* six, yellow.



Pub. by S. Curtis, florist, &c., ed. f. 1838.

(3647)

MAMMILLARIA FLORIBUNDA. COPIOUS-
FLOWERING MAMMILLARIA.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

Calycis tubus ovario adherens, lobi 5—6 colorati fructum juniorem coronantes. *Petala* 5—25 a calyce vix distincta, eo longiora et cum sepalis in tubum concreta. *Stamina* filiformia plurisepalia. *Stylus* filiformis. *Stigma* 3—7-fidum radiatum. *Bacca* lævis oblonga. *Semina* nidulantia. *Cotyledones* minutæ, acuminatæ.—Suffrutices *carnosi sub-rotundi aut cylindracei, lactescentes aut succo limpido repleti, aphylli, tuberculis subconicis mammæformibus spiraliter dispositis, apice spinulas radiantes et tomentum demum deciduum gerentibus obtecti*. Flores inter basin mammillarum sessiles, sæpius in zonam transversam dispositi. *Bacca* obovata edulis, calyce marcescente demum decido, coronata. Pfeiff.

Specific Name and Character.

MAMMILLARIA *floribunda*; simplex subdeformis globoso-subcylindracea, mammillis grossis conico-hemisphericis obtusis, areolis villosa-tomentosis, aculeis 14—16 validis strictis subæqualibus viridi-fuscis, floribus copiosissimis, petalis valde inæqualibus interioribus erectis.

This really fine MAMMILLARIA was imported by Mr. HITCHIN from Chili, and passed with the rest of that gentleman's rich collection of CACTEÆ into the hands of Messrs. MACKIE of the Norwich Nursery, who kindly sent the beautiful figure here represented. I do not find it any where described;

described; indeed, we cannot but regret how few of the many CACTEÆ noticed by Travellers as inhabiting the Pacific side of *extra-tropical* America; have been yet introduced to our gardens. The early writers on CACTEÆ erred in considering the CACTEÆ as almost peculiar to the warmer parts of the tropics, and curiosity was much excited when Dr. GILLIES sent from Mendoza (lat. $33^{\circ} 25''$ S.) no less than twenty-two species. The distinguished Traveller and Naturalist, Mr. C. DARWIN, found “CACTI abundant, and of a large size, at Rio-Negro in latitude 41° S.,” and one species, *OPUNTIA Darwinii*, HENSLOW, was seen by that gentleman so far South as Port St. Julian in, lat. 49° S., though more abundant in Patagonia, at Port Desire, lat. 47° S., where the climate indeed is remarkably dry and clear, hot in summer, but with sharp frosts during the winter nights.

The present species I have no opportunity of describing particularly. It will be at once seen that in some characters it approaches our *M. atrata* (t. 3642) differing, however, abundantly in its stouter habit, larger, and less closely placed, and more projecting mammillæ, the stouter and coarser aulei, larger flowers, and very unequal petals, which are moreover of a paler red colour, yellowish in their lower half.

(3634)

MAMMILLARIA LEHMANNI. LEHMANN'S
MAMMILLARIA.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

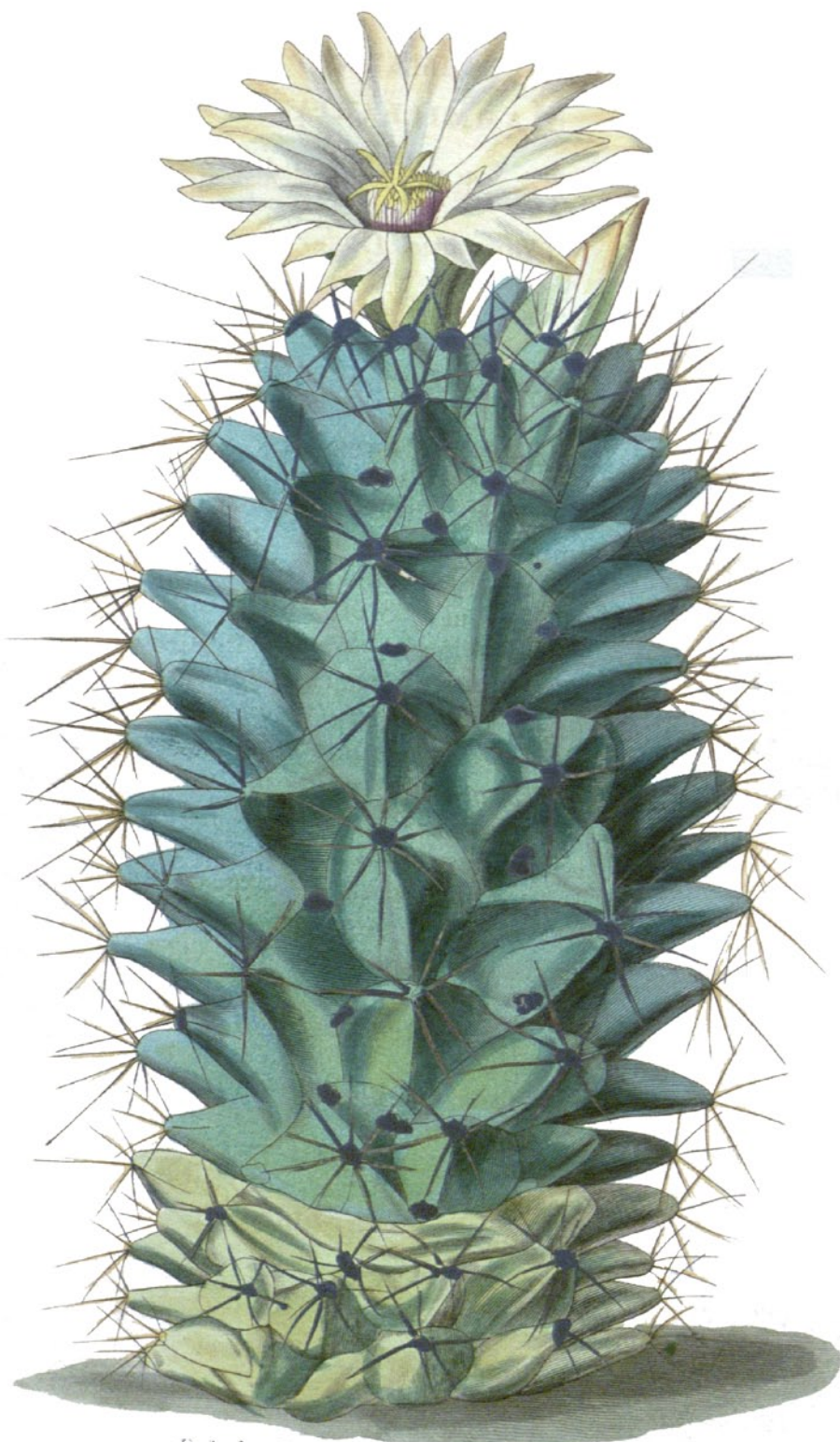
Calycis tubus ovario adhærens; lobi 5—6 colorati fructum juniorum coronantes. *Petala* 5—6 à calyce vix distincta eo longiora et cum sepalis in tubum conereta. *Stamina* filiformia pluriserialia. *Stylus* filiformis. *Stigma* 5—7-fidum radiatum. *Bacca* lævis. *Semina* nidulantia. *Cotyledones* nullæ. (ex Nutt.)—Suffrutices carnosi subrotundi aut subcylindracei axi ligneo destituti, (an in omnibus?) lactescentes, aphylli, tuberculis subconicis mammæformibus spiraliter dispositis confertis apice spinulas radiantes et tomentum demum deciduum gerentibus obtecti. Flores inter bases mammillarum sessiles, sæpius in zonam transversam dispositi. *Bacca* obovata, edulis, calyce marcescente demum deciduo coronata. Tubercula caulis simulant folia Mesembryanthemorum barbatorum, et forte sunt vera plantæ.

Specific Character and Synonyms.

MAMMILLARIA *Lehmanni*; oblonga subcylindrica, mammillis magnis conicis angulatis subtetragonis in axillis glandulosis resiniferis, apicibus fasciculati aculeatis, aculeis 7—8 rectis gracilibus unico longiore, floribus terminalibus, petalis lineari-oblongis acuminatis stramineis.

MAMMILLARIA *Lehmanni*. Hort. Berol.-Pfeiff. En. Cact. p. 23.

M. octacantha et leucacantha. D C. Rev. p. 113. Mem. p. 11? (ex Pfeiffer.).



Pub. by S. Curtis. Glasswood Essee, Feb 21. 1838. Swan So.

From the rich collection of CACTEÆ, formerly Mr. HITCHIN'S, now in the possession of Messrs. MACKIE, who obligingly

ingly communicated the drawing here figured. Its native country is Mexico. Mr. F. MACKIE observes, that it is “a very distinct and remarkable species, bearing dark points in the axils of the mammillæ, which in hot weather exude a dark-coloured viscid matter, which I have not observed in any other species.”

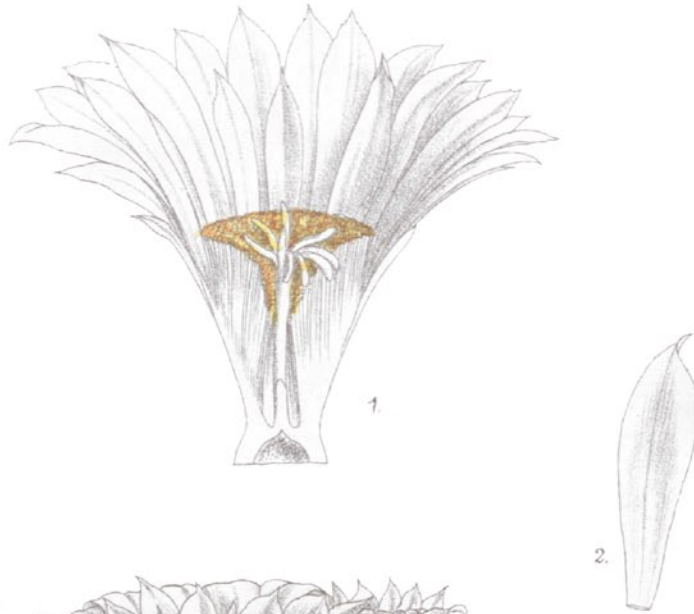
DESCR. *Stem*, in the specimen here figured, about six inches high, oblong and cylindrical, covered all over with large, conical mammillæ, three-quarters of an inch long, angled with about four sides, and tipped with a minute woolly tuft, from which springs a fascicle of seven or eight slender *spines*, mostly three or four lines in length, but one of them is twice as long as the rest. *Flowers* moderately large, terminal. *Calycine tube* short. *Petals* numerous, imbricated, spreading, linear-oblong, of a delicate straw-colour. *Stamens* and *style* included. *Filaments* red. *Anthers* and *stigmas* yellow.

TAB. 7279.

MAMMILLARIA PRISMATICA.

Native of Mexico.

Nat. Ord. CACTEÆ. Tribe ECHINOCACTEÆ.

Genus MAMMILLARIA, Haw.; (*Benth. et Hook. f. Gen. Pl.* vol. i. p. 84).

MAMMILLARIA (*Anhalonium*) *prismatica*; acaulis, tuberculis radicalibus 1 poll. latis spiraliter imbricatis crusta cartilaginea tenni opace glauco obductis late deltoideis obtusis v. retusis marginibus rotundatis, superioribus basi foliaceo-applanatis superne incrassatis trigonis acutis deltoideo retusis integerrimis apicibus in plantis juvenilibus (rarissime in maturis) pulverigeris, axillis lanatis, floribus terminalibus basi lana copiosa velatis.

M. (*Anhalonium*) *prismatica*, Hemsl, in *Biol. Centr. Amer. Bot.* vol. i. p. 519 (*exel. citat.*).

M. *aloides*, Monv. *Cat.* 1846, ex *Labour. Monog. Cact.* p. 153.

M. (*Anhalonium*) *retusa*, Mittl. *Man. Amat. Cact.* p. 11, ex *Labour l. c.*

Anhalonium prismaticum, Lem. *Cact. Hort. Monv.* 1839, p. 1; in *Hortic. Univers.* t. 30; in *Berlin Gartenz.* (1835), p. 541, fig. 126; *Les Cactées*, p. 41; *Labouret. Monog. Cact.* (1847), p. 153; *Salm Dyck. Cact. Hort. Dyck.* pp. 5, 77.

A. *retusum*, *Salm Dyck. l. c.* p. 5.

Ariocarpus retusus, Scheidw. in *Bull. Acad. Brux.* vi. (1839), p. 88; in *Hortic. Belg.* (1838), p. 377; et in *Ann. Sc. Nat.* vol. x. (1838), p. 125.

The genus *Anhalonium*, founded by Lemaire (*Cact. Gen. Nov.* and sp. *Hort. Monv.* p. 1) in 1839, on certain species of *Mammillaria* with naked tubercles, and the flowers formed on the terminal tubercles, was reduced by Engelmann, the most learned author on *Cactææ*, to a section of the latter genus, in his account of the species of the Order collected during the progress of the United States and Mexican boundary survey under the command of Lieut-Col. Emory. Under the only species there described, *M. fissurata*, Engelm., p. 18, t. 17, Dr. Engelmann says of the *Anhalonia*: "These very curious plants, some of them looking more like some *Aloe* than like a *Cactus*, can nevertheless not be separated from *Mammillaria*. The seed is the only part of the organs of fructification which seems to me to offer any character, by having a hard roughly tubercled testa in ours, as well as in another Mexican species which I had the opportunity to examine. Our species

FEBRUARY 1ST, 1893.

(and probably all the others) have the flower and fruit sessile upon the lower part of the tubercle, and elevated above the axil, much as in *M. macromeris*; but unlike that plant, the lower part of the tubercle is entirely distinct from the upper one."

The species represented on Plate 7279 a good deal resembles that of Engelmann's *M. fissurata*, but is a very much larger plant, the tubercles are not so ovate, are perfectly smooth (not warted and fissured), and the perianth is larger and longer.

As the propriety of adopting the specific name (*M. prismatica*) here employed may be traversed from being founded on an erroneous citation of Lemaire's Hort. Univ., I should add, that I think it has better claim for adoption than the earlier of *M. retusa* and *M. aloides*, as being more significant, as the first given to the species, and as being everywhere recognized where *Cacti* have been growing or studied for upwards of half a century.

About a dozen species of Mammillaria have been referred to *Anhalonium*, all natives of Andean regions, from Northern Mexico, southward to Peru. *M. prismatica* was discovered in 1838 by Galeotti, near San Louis de Potosi, in Mexico, at an elevation of seven thousand to eleven thousand feet. The specimen here figured flowered in the Succulent House of the Royal Gardens in September, 1889, when the flowers were, as represented, pure white; but they are described as rose-coloured by Salm Dyck. The specimen was purchased from C. Runge, of St. Antonio, Texas, in 1888.—*J. D. H.*

Fig. 1, Flower; 2, petal:—both slightly enlarged.

(3972)

MAMMILLARIA PYCNACANTHA. DENSELY-
SPINED MAMMILLARIA.

Class and Order.

POLYANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

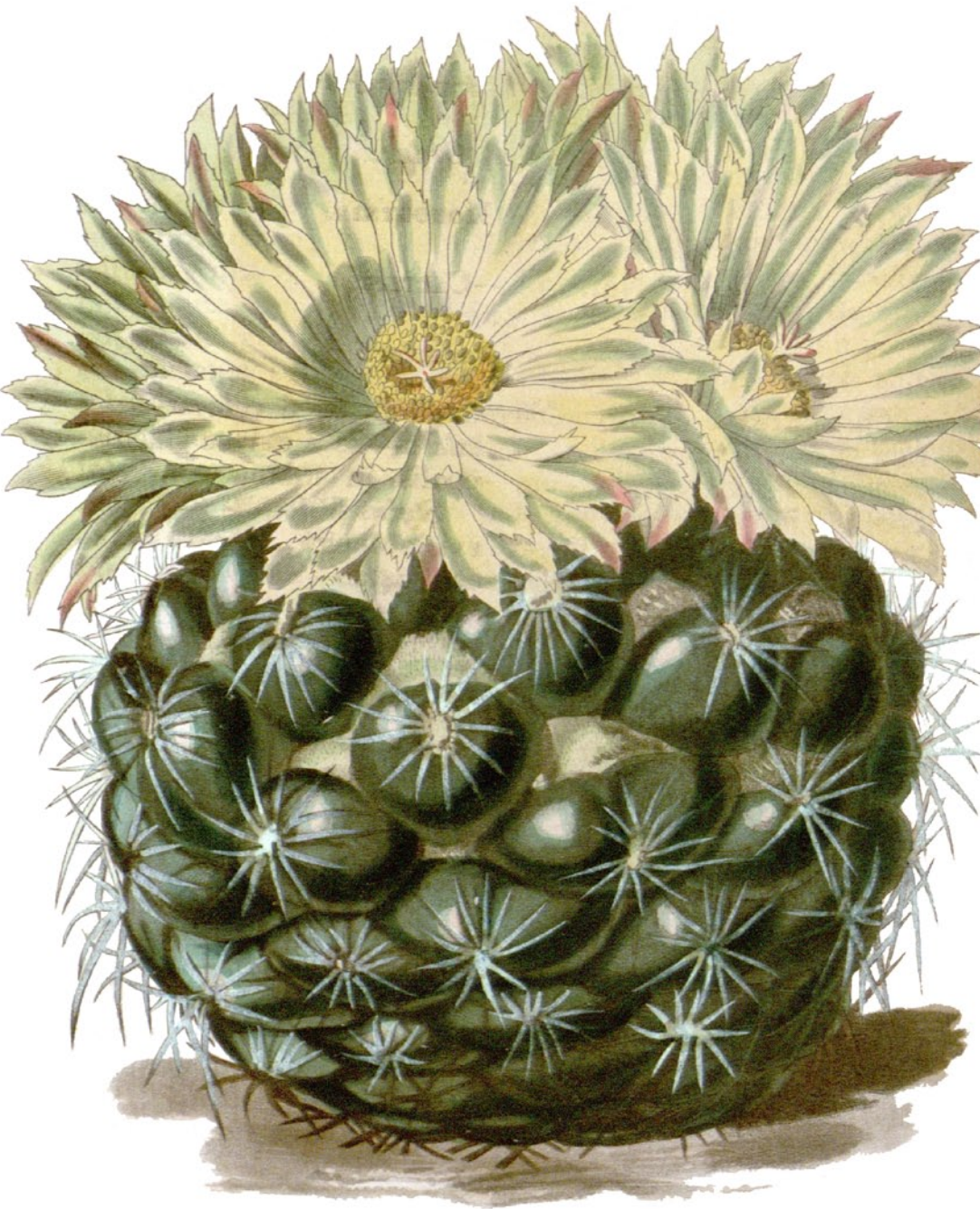
Calycis tubus ovario adhærens; lobi 5—6 colorati fructum juniorem coronantes. *Petala* 5—25 a calyce vix distincta, eo longiora et cum sepalis in tubum concreta. *Stamina* filiformia pluriserialia. *Stylus* filiformis. *Stigma* 3—7-fidum radiatum. *Bacca* lævis oblonga. *Semina* nidulantia. *Cotyledones* minutæ, acuminatæ.—Suffrutices *carnosi, subrotundi aut cylindracei, lactescentes aut succo limpidio repleti, aphylli, tuberculis subconicis mammæformibus spiraliter dispositis, apice spinulas radiantes et tomentum demum deciduum gerentibus*. Flores *inter basin mammillarum sessiles, sæpius in zonam transversam dispositi*. *Bacca* obovata, edulis, calyce marcescente, demum deciduo, coronata. Pfeiff.

Specific Character and Synonyms.

MAMILLARIA *pycnacantha*; subrotundo-cylindræa, mammillis latiusculis superne obscure bilobis, aculeis 12—16 pallidis patenti-recurvatis demum fuscatis seriei interioris robustioribus, lana floccosa in axillis areolisque superioribus et circa flores.

MAMILLARIA *pycnacantha*. Mart.-Lehm. in Act. Nov. Cur. v. 16. p. 325. t. 17. Pfeiff. Enum. Cact. p. 16.

From the collection in the Royal Gardens of Kew: a native, it is said, of the neighbourhood of Oaxaca, Mexico. The plant, figured by LEHMANN, in the work above quoted, represents a young plant, more elongated than usual. In other



other respects it quite accords with our specimens. When well grown the form is almost globose. It flowers copiously, in July, from the summit, and numerous offsets are produced also from the apex, by which the plant may be easily increased.

DESCR. *Plant* about six inches high, and almost the same in breadth, of a rounded form, but nearly straight at the sides so as to be somewhat cylindrical. *Mammillæ* large, nearly an inch broad at the base, hemispherical, but broader than long, and obscurely two-lobed, dark green, slightly glaucous: the *axillæ*, especially the upper ones, where they are less crowded, filled with dense, white wool. *Spines* 12—16, woolly at the base, spreading and recurved, pale brown. *Flowers* five or six, opening at a time, on the top of the plant, and making a handsome appearance when spreading under the influence of the sun, of a deep sulphur yellow colour, two and a half or three inches in diameter. *Petals* linear-oblong, acuminate, serrated. *Anthers* orange-coloured. *Stigmas* yellow.

(3646)

MAMMILLÁRIA TÉNUIS. TAPER MAM-
MILLARIA.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

Calycis tubus ovario adherens, lobi 5—6 colorati fructum juniorem coronantes. *Petala* 5—25 a calyce vix distincta, eo longiora et cum sepalis in tubum concreta. *Stamina* filiformia pluriseriaria. *Stylus* filiformis. *Stigma* 3—7-fidum radiatum. *Bacca* lævis oblonga. *Semina* nidulantia. *Cotyledones* minutæ acuminatæ.—Suffrutices carnosî subrotundi aut cylindracei, lactescentes aut succo limpido repleti, aphylli, tuberculis subconicis mammæformibus spiraliter dispositis, apice spinulas radiantes et tomentum demum deciduum gerentibus obtecti. Flores inter basin mammillarum sessiles, sæpius in zonam transversam dispositi. *Bacca* obovata edulis, calyce marcescente demum deciduo, coronata. Pfeiff.

Specific Character and Synonyms.

MAMMILLARIA *tenuis*; basi sæpe multiplex, cylindracea, axillis angustis nudis, mammillis ovatis, areola juniorum sublanata, aculeis setiformibus 20—25 flavidis radiantibus mammilla paulo longioribus, centralibus nullis.

MAMMILLARIA *tenuis*. De Cand. *Rev. des Cact.* p. 110. *Mém.* p. 4. t. 1. Lindl. *Bot. Reg.* t. 1523. Pfeiff. *Enum. Cact.* p. 6.

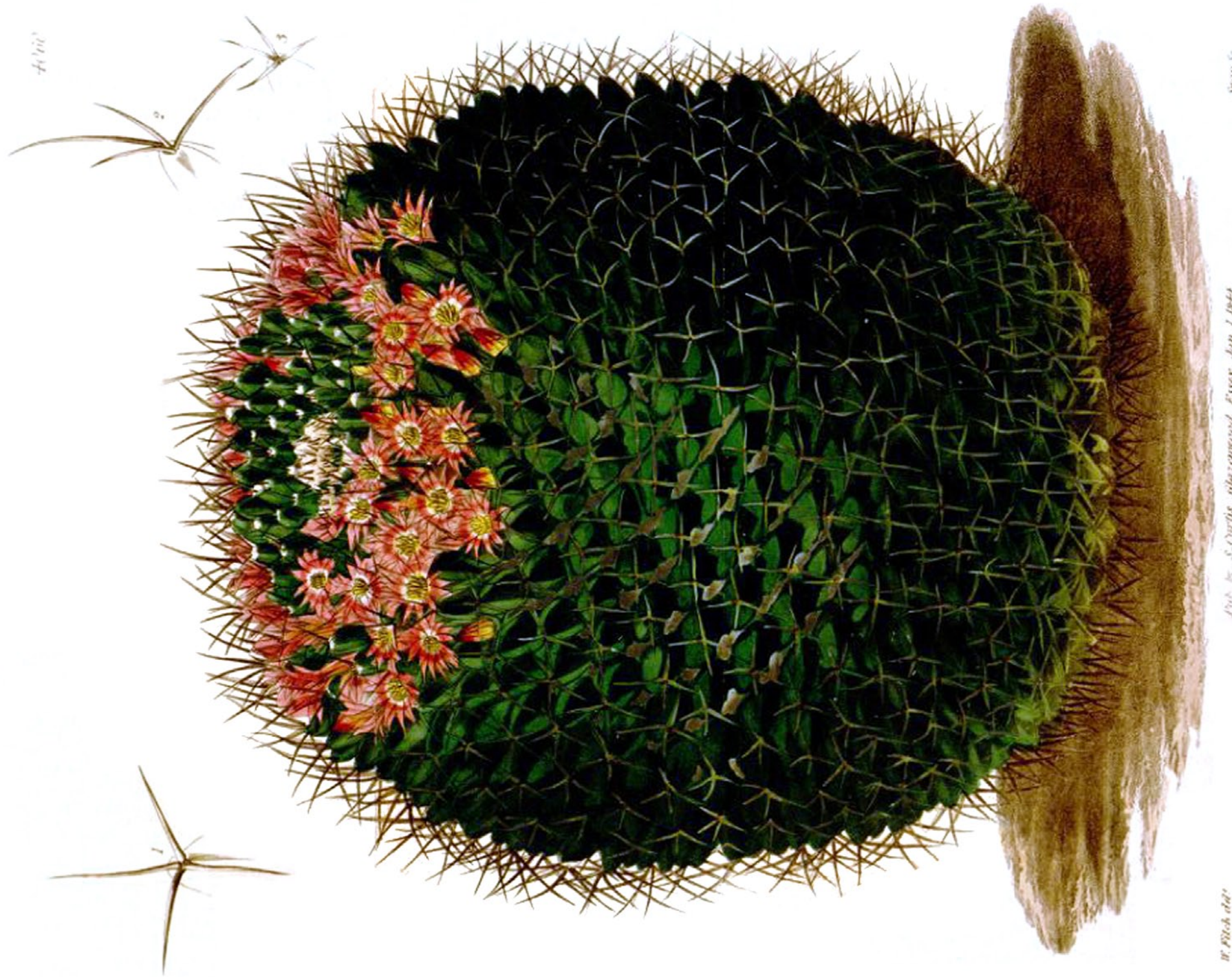
This is no doubt a variable plant. The specimen to which DE CANDOLLE applied the name, though as tall as the one here figured was only five lines in diameter. Of the beautiful little group to which this belongs, four kinds were



were discovered in Mexico, *M. echinaria*, *subcrocea*, *inter-texta*, and the present one, all of DE CANDOLLE, but these four, that able traveller, Dr. COULTER, who had the opportunity of studying them in their native soil, considers, contrary to the opinion of DE CANDOLLE, as but forms of one and the same species. Indeed the *M. densa* of LINK and OTTO, Hort. Berol. t. 35, (*var. β.* of *M. echinata*, according to PFEIFFER,) can scarcely be distinguished from this, but by its rather large mammæ, and longer and straighter spines. Be that as it may, the present plant is one of great beauty and of very curious structure. The aculei are so closely placed and so regular and delicate, that they seem to clothe the plant with a fine cobwebby substance. The specimen from which the present drawing was taken, flowered in the stove of the Glasgow Botanic Garden in the month of May. It grows freely, and is readily increased by offsets.

DESCR. *Plant* two to four inches high, and an inch or more in diameter, cylindrical, or a little tapering upwards, throwing out copious nearly globose offsets from the sides, especially at the base. The whole is covered with *mammillæ* of an hemispherical form, green, about a quarter of an inch in diameter, each tipped with a tuft of white down, from which diverges a cluster of about twenty slender, recurvo-patent aculei, nearly as long as the mammillæ, at first reddish, then yellowish or pale tawny. From below the summit and from all sides indifferently, spring the *flowers*, solitary, small, and campanulate, they are pale straw-coloured, slightly externally tinged with red.

Fig. 1. Flower. 2. Pistil:—magnified.



(4060)

MAMMILLÁRIA TETRÁCANTIA. FOUR-SPINED
MAMMILLARIA.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

Calycis tubus ovario adherens; lobi 5—6 colorati fructum juniorem coronantes. *Petala* 5—25 a calyce vix distincta, eo longiora et cum sepalis in tubum concreta. *Stamina* filiformia pluriserialia. *Stylus* filiformis. *Stigma* 3—7-fidum radiatum. *Bacca* lævis oblonga. *Semina* nidulantia. *Cotyledones* minutæ acuminatæ.—Suffrutices *carnosi subrotundi aut cylindracei, lactescentes aut succo limpido repleti, aphylli, tuberculis subconicis mammæformibus spiraliter dispositis, apice spinulas radiantes et tomentum demum deciduum gerentibus obtecti*. Flores *inter basin mammillarum sessiles, sæpius in zonam transversam dispositi*. *Bacca* obovata, edulis, calyce marcescente, demum deciduo, coronata. Pfeiff.

Specific Character and Synonyms.

MAMMILLARIA *tetracantha*: subglobosa simplex, axillis lanatis, mammillis confertissimis gracilibus anguloso-pyramidatis, aculeis ex areola fere nuda regulariter 4 brevibus rigidis, infimo cæteris paulo longiore, junioribus rubellis apice nigricantibus tandem albidis. Pfeiff.

MAMMILLARIA *tetracantha*. “Salm.” Pfeiff. Enum. Cact. p. 18.

The plant here figured has long been cultivated in the Cactus-house of the Royal Botanic Gardens, Kew, under the above appellation: and it appears sufficiently to accord with that of the same name published by PFEIFFER, the only author,

author, so far as I can find, who has noticed it. His description, indeed, seems to have been drawn up from a young specimen “four inches high, and three inches and a half in diameter, with the mammillæ and aculeæ small in proportion;” and the flowers were, probably, unknown to that author, since he does not mention them. It is a native of Mexico, but by whom introduced to Europe I do not learn. It flowers in July.

DESCR. Our plant is of a subglobose form, a little elongated, flattened at the top, nearly a span high, and a little less in diameter, everywhere externally formed of numerous *mammillæ* of a conical or pyramidal form, but somewhat angular, between half and three quarters of an inch long, and about as broad at the base, terminated with a depression, from which arise four spreading aculei, longer than the mammillæ, moderately strong, between setaceous and subulate, at first brown tipped with a darker colour, then paler, at length almost white: these are about three-quarters of an inch in length, but the two lateral ones are frequently the shortest. The axillæ between the mammillæ are occupied by a dense mass of white wool, as are the apices of the young mammillæ. *Flowers* numerous, small, from the axils of the mammillæ, crowded about the depressed portion of the plant, bright full rose-colour, paler in the disk.

Fig. 1. Front view, and f. 2, side view of the Spines: slightly *magnified*.

(3984)

MAMMILLÁRIA TURBINÁTA. TOP-SHAPED
MAMMILLARIA.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

Calycis tubus ovario adhærens; lobi 5—6 colorati fructum juniorem coronantes. Petala 5—25 a calyce vix distincta, eo longiora et cum sepalis in tubum concreta. Stamina filiformia pluriserialia. Stylus filiformis. Stigma 3—7-fidum radiatum. Bacca lævis oblonga. Semina nidulantia. Cotyledones minutæ acuminatæ.—Suffrutices *carnosi subrotundi aut cylindranei lactescentes aut succo limpido repleti, aphylli, tuberculis subconicis mammæformibus spiraliter dispositis, apice spinulas radiantes et tomentum demum deciduum gerentibus obtecti. Flores inter basin mammillarum sessiles, sepius in zonam transversam dispositi. Bacca obovata edulis, calyce marcescente, demum deciduo, coronata. Pfeiff.*

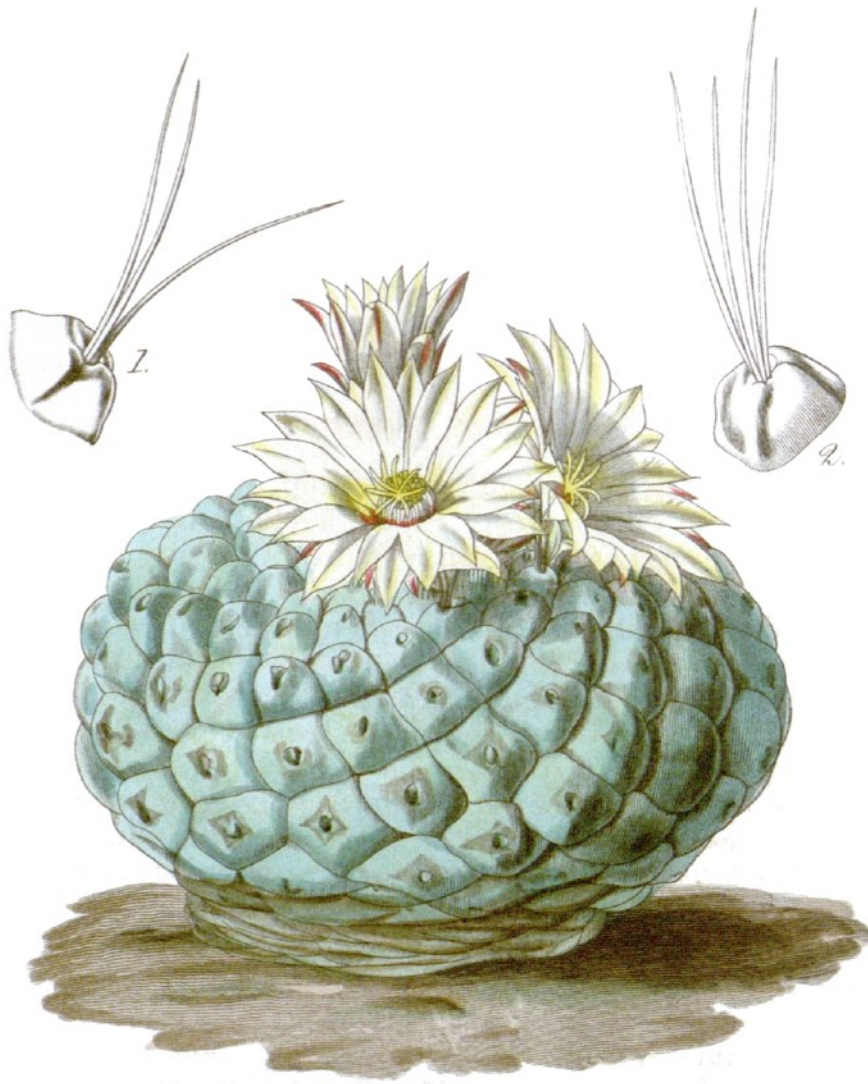
Specific Name and Character.

MAMMILLARIA *turbinata*; glauca, subrotunda vertice depressa basi contracta, mammillis obtusis conicis tetragonis apice umbilicatis, supremis spinis 3—4 erectis acicularibus mammilla quadruplo longioribus, reliquis nudis.

MAMMILLARIA *turbinata*. Hortul.

One of the most distinct of all the species of this numerous Genus, and not likely to be confounded with any other. It is, too, of rare occurrence in collections, and only known to us from having been received from the stoves of Messrs.

LEE



LEE and KENNEDY at Hammersmith, where it bears the name here retained. It is, probably, a native of Mexico, and flowers with us in June.

DESCR. Our *plant* is as large as a moderately sized apple, globose, but depressed at the summit, and contracted at the base, of a singularly pale glaucous hue. At the contraction, the *tubercles*, or *mammillæ*, are flattened, and lengthened out transversely; the rest are prominent, sub-hemispherical, but obtusely quadrangular and umbilicated at the top, whence, in the upper ones, arises a fascicle of from three to five erect, slender, almost filiform *spines*, about four times the length of the mammillæ; the rest of the mammillæ are spineless, the spines being deciduous. *Flowers* from the upper part of the plant, among the spine-bearing mammillæ, of a moderate size, about an inch in diameter. The *petals* are of a pale yellow or straw-colour, on the outside tipped with red. *Anthers* and *stigmas* yellow.

Fig. 1. 2. Mammillæ, with Spines, from the upper part of the plant:—*magnified*.



(3293)

OPUNTIA BRASILIENSIS. BRAZILIAN
PRICKLY-PEAR.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

Sepala numerosa, ovario adnata, foliiformia, summa plana brevia, intima petaliformia obovata rosacea expansa, tubo supra ovarium nullum. *Stem.* numerosa petalis breviora. *Stylus* cylindricus basi constrictus. *Stigmata* plurima, erecta, crassa. *Bacca* ovata, apice umbilicata, tuberculata, sæpius spinifera. *Embryo* subspiraliteretiusculus. *Cotyledones* semiteretes, germinantes foliaceæ planæ crassæ. *Plumuda* parva.—Frutices, trunco demum tereti, juniore ramisque rarissimis cylindricis sæpius plus minus compressis. articulis, articulis ovatis aut oblongis fasciculos aculcorum aut setarum ordine quincunciali seu spirali dispositos gerentes. Folia sediformia caducissima subquoque fasciculo juniore. Flores e fasciculis aut marginibus aut articulorum orti, flavi aut rubentes. Stam. tactu subirritabilia.

Specific Character and Synonym.

OPUNTIA *Brasiliensis*; arborea, caule erecto tereti stricto elato recto, ramis abbreviatis patentibus s. declinantibus, articulis ultimis compressis foliaceo-planis obovatis spinis solitariis longis subulatis albis apice fuscis armatis lanugine obsoleta.

OPUNTIA *Brasiliensis*. D C. Prodr. iii. p. 474. No. 33.

The accompanying beautiful and very accurate delineation is the joint production of two ladies, whose talent in executing is only equalled by their zeal and readiness in undertaking

undertaking whatever may be useful in the cause of Botanical science; the Hon. Miss NORTON and Miss YOUNG.

Though of comparatively recent introduction to Madeira, *O. Brasiliensis* now occurs in several gardens at Funchal, flourishing without the slightest care or attention. Its principal flowering season is May or June; but blossoms are often produced more or less throughout the year. The fruit figured was ripe in May, simultaneously with the inflorescence; but August or September is its more abundant season.

The peculiar habit and mode of growth at once distinguish this species. It rises with a perfectly straight, erect, slender, but firm and stiff, round stem, to a height of from ten to twenty, or even thirty feet, very gradually tapering to a point from a diameter of two to six inches at the base, and furnished all the way up with short, mostly horizontal or declining branches, spreading round on all sides not more than a yard in any part from the main stem, and gradually becoming shorter upwards; often altogether ceasing a little below the summit. The whole *plant* resembles a straight, taper pole, artificially dressed up with branches. *Main stem* perfectly round, continuous and straight throughout; formidably armed with fascicles of long, slender, subulate, very sharp, pale or ash-coloured spines, several together. *Branches* horizontal or declining, short, from flattened or triangular becoming downwards round; armed with spines like those of the stem, but fewer in a fascicle. The ultimate joints are obovate, or obovato-oblong, approaching often to lancolate, sometimes truncate; the margins a good deal sinuated. They resemble leaves in appearance and thickness, more than in any other described species of *OPUNTIA*; being only about twice as thick as those of *CEREUS Phyllanthus* or *phyllanthoides*, D C., but stiffer. They are armed on both sides with solitary, long, slender, subulate, spines, which are white with chestnut-brown tips, and very sharp; each seated at the summit of a slight, irregular tubercle: the down at their base is obsolete or altogether wanting. The whole plant is a bright green inclining to yellow, especially in young, or sickly plants: the lower part of the stem only is brownish-ash-colored. The *flowers* open in long succession, being abundantly produced all over the plant from the prominent parts of the edges of the terminal joints. They are bright lemon-yellow, middle-sized; when expanded, from an inch to an inch and half in diameter; without any tube. *Petals* imbricated,

imbricated, sub-patent; the outer ones short, thick, and fleshy; the inner from half an inch to an inch long. *Style* longer than the stamens, pale yellow, thickish, swollen downwards, solid, or with only a thread-like, central hollow towards the top. *Stigma* of generally five, sometimes four, pale yellow, finally ferruginous-bordered, erect, subconnivent, ovate lobes. *Filaments* and *anthers* pale. *Germen* half or three quarters of an inch long, cup-shaped at top, uneven, angulato-tubercular, bearing a minute, fleshy, ovato-globose, yellowish, deciduous leaf at the summit of each irregular tubercle, inside of which is a fascicle of short, minute, chestnut bristles: a vertical section discovers the central, subtriangular, cell-like ovary, containing from one to five ovules. *Fruit* subglobose, approaching to oval more or less, with the cup-shaped hollow at the top obsolete, so as to be often truncate, from an inch to an inch and half in diameter, the colour of a Maguin-bonum Plum; perfectly even, but furnished with short, dense fascicles, tufts, or branches, of rich chestnut-coloured bristles, contrasting beautifully with the delicate transparent yellow of the thin, smooth skin. A few of these are twice as long as the rest: all are extremely deciduous, brittle, and acute, so as to render the examination of the fruit more than ordinarily troublesome. It is hardly possible to touch the plant when in fructification without getting the skin or clothes full of these bristles. Inside of the *fruit* pale yellowish-white, containing in the middle from one to four, much flattened, rather large round seeds, three or four lutes in diameter, enveloped in a singular, dense, cottony mass of fibres. The fruit is rather agreeable, juicy, with a fine acid, somewhat resembling an indifferent, hard-fleshed, or unripe Plum, with a smell and slight flavour like the leaf-stalks of garden Rhubarb. *Rev. J. T. Lowe.*

Fig. 1. Diminished sketch of the whole Plant. 2. Branch with flowers and ripe Fruit 3. Vertical Section of the Germen and style, with the Stamens and a single Petal. 4. Pistil split down and spread open. 5. Seed from the ripe Fruit:—fig. 2-5 *nat. size*; the rest *magnified*.

(3301)

OPUNTIA CYLINDRICA. ROUND-STEMMED
PRICKLY PEAR.

Class and Order.

ICOSANDRIA MONOGYNIA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

Sepala numerosa, ovario adnata, foliiformia, summa plana brevia, intima petaliformia obovata rosacea expansa, tubo supra ovarium nullo. *Stamina* numerosa petalis breviora. *Stylus* cylindricus basi constrictus. *Stigmata* plurima, erecta, crassa. *Bacca* ovata, apice umbilicata, tuberculata, sæpius spinifera. *Embryo* subspiralis, teretiusculus. *Cotyledones*, semiteretes, germinantes foliaceæ planæ crassæ. *Plumula* crassa.—Frutices, *trunco demum tereti, juniore ramisque rarissimis cylindricis sæpius plus minus compressis articulatis, articulis ovatis aut oblongis fasciculos aculeorum aut setarum ordine quincunciali sen spirali dispositos gerentes*. Folia *sediformia caducissima subquoque fasciculo*. Flores *e fasciculis aut marginibus articulorum orti, flavi aut rubentes*. *Stamina tactu subirritabilia*.

Specific Character and Synonyms.

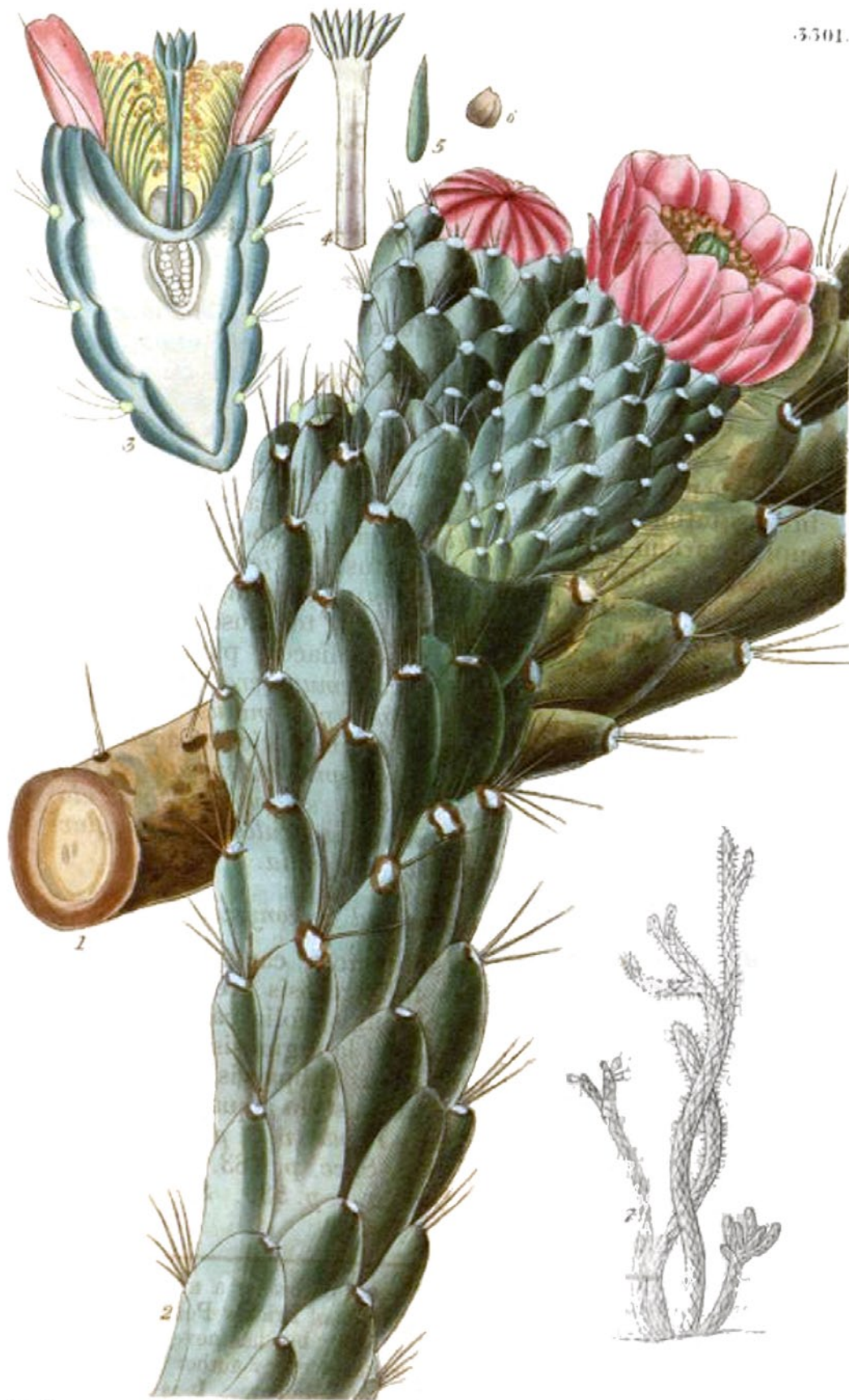
OPUNTIA *cylindrica*; erecta subramosa, caule ramisque cylindricis subsimplicibus tuberculis arcolato-sulcatis tuberculis rhomboideo-oblongis, folia caduca spinasque subulatis fasciculatis basi lanuginosis apice gerentibus, floribus subterminalibus subparvis, petalis erectis abbreviatis coroniformibus, stylo æquali s. filiformi.

OPUNTIA *cylindrica*. De Cand. Prodr. v. 3. p. 471.

CEREUS *cylindricus*. Haw. Syn. Succ. p. 183.

CACTUS *cylindricus*, Lam. Dict. v. 1. p. 539. Spreng. Syst. Veget. v. 2. p. 495.

I am indebted to the Honorable Miss NORTON for a most admirable and truly artist-like drawing of this species of Prickly Pear, which was originally introduced into England in 1799, but has never flowered in Britain. the inflorescence being unknown to every author who has described the species. Thence it was sent to Madeira. It is truly intermediate



mediate between *Cereus* and *Opuntia*; having the filiform style and habit of the former, with the tubeless flowers of the latter. The bony, compact, central mass of seeds, (not diffused through the flesh, but distinct and separate,) is different from any thing I have observed in either of these genera: but the number of species which have fallen under my observation, is far too limited to justify more than a suggestion whether this character may prove corroborative of Professor DE CANDOLLE's idea that the present plant with its allies may hereafter form a distinct Genus.

DESCR. *Stems* several, cylindrical, scarcely erect without some support when full grown: the main one six feet high or more, about two inches in diameter throughout, with a few, distant, erect or ascending, thickish branches, placed irregularly, subdivided; when young, rather club-shaped, always very obtuse: the whole of a dark dull green (except the lower part of the stem, which is ash-coloured or brownish,) and thickly armed with fine, sharp, but not very long, pale or white, finally divaricating *spines*, growing in fascicles of two or three on the branches, five or six on the stem, out of the top of each of the oblong or subpyriform tubercles, which are arranged spirally and quincuncially with beautiful regularity round the branches. At the base of the spines is a large, diffuse tuft of very short, white, cottony bristles, filling up the channel or hollow above the top of each of the tubercles. *Leaves* deciduous, half an inch long, cylindrical, acute, like those of some *Sedums*. *Flowers* several together just below the ends of the branches, rather small and inconspicuous, about an inch in diameter, scarlet. *Tube* none. *Petals* short and erect, forming a sort of upright coronet, about half an inch high, at the top of the large, spirally tubercled germen, remote from the pistil; in seldom more than two rows; the *outer* row more fleshy, narrow, acute, closing over the inner ones in the bud in a beautifully regular, rose-like or stellate manner; *inner* row thinner, much larger and broader, rounded or retuse. *Stamens* numerous, incurved. *Pistil* an inch long. *Style* slender, of nearly equal diameter throughout, or not conspicuously swollen downwards as in the true OPUNTIAE, pale green, hollow and pinkish within. *Stigma* just overtopping the anthers, of about eight, erect, linear-lanceolate, or oblong, acute, pale green lobes. *Germen* large, spirally tubercled and setaceo-spinose, like the stem, but the tubercles are much shorter and broader; oblong-obovate, deeply umbilicate at the top. *Ovary* containing many *ovules*, placed high up adjoining the bottom of the cup-like hollow of the germen. *Fruit* oval, subtruncate at each end, with the hollow at the top remarkably deep; about two inches long and one across; pale yellowish-green, generally more or less discoloured with pale ashy brown, seemingly from some disease of the epidermis the tubercles obsolete, or as if worn down into broad, flat, rhomboidal areolæ, as well as the tufts of bristles. *Flesh* hard, pale-greenish, insipid, but disagreeably viscous with a nauseous, fishy smell. *Seeds* roundish-angular, much more convex than usual, or even globose, but of all shapes from compression, very closely packed into a hard, dense, bony, compact mass in the centre of the fruit, as large as a small marble; each seed about two or three lines in diameter. *Rev. J. T. Lowe.*

Fig. 1. Lower part of the Stem. 2. Upper part of ditto. 3. Vertical Section of the Germen and Flower, through the Pistil and Ovary. 4. Part of the Slit and Stigma, split open. 5. Leaf. 6. Seed. 7. Diminished sketch of the whole plant.—Fig. 4—6 *magnified*.

OPUNTIA DAVISII.

Native of New Mexico.

Nat. Ord. CACTEÆ.—Tribe OPUNTIEÆ.

Genus OPUNTIA, Mill.; (*Benth. et Hook. f. Gen. Pl. vol. i. p. 857.*)

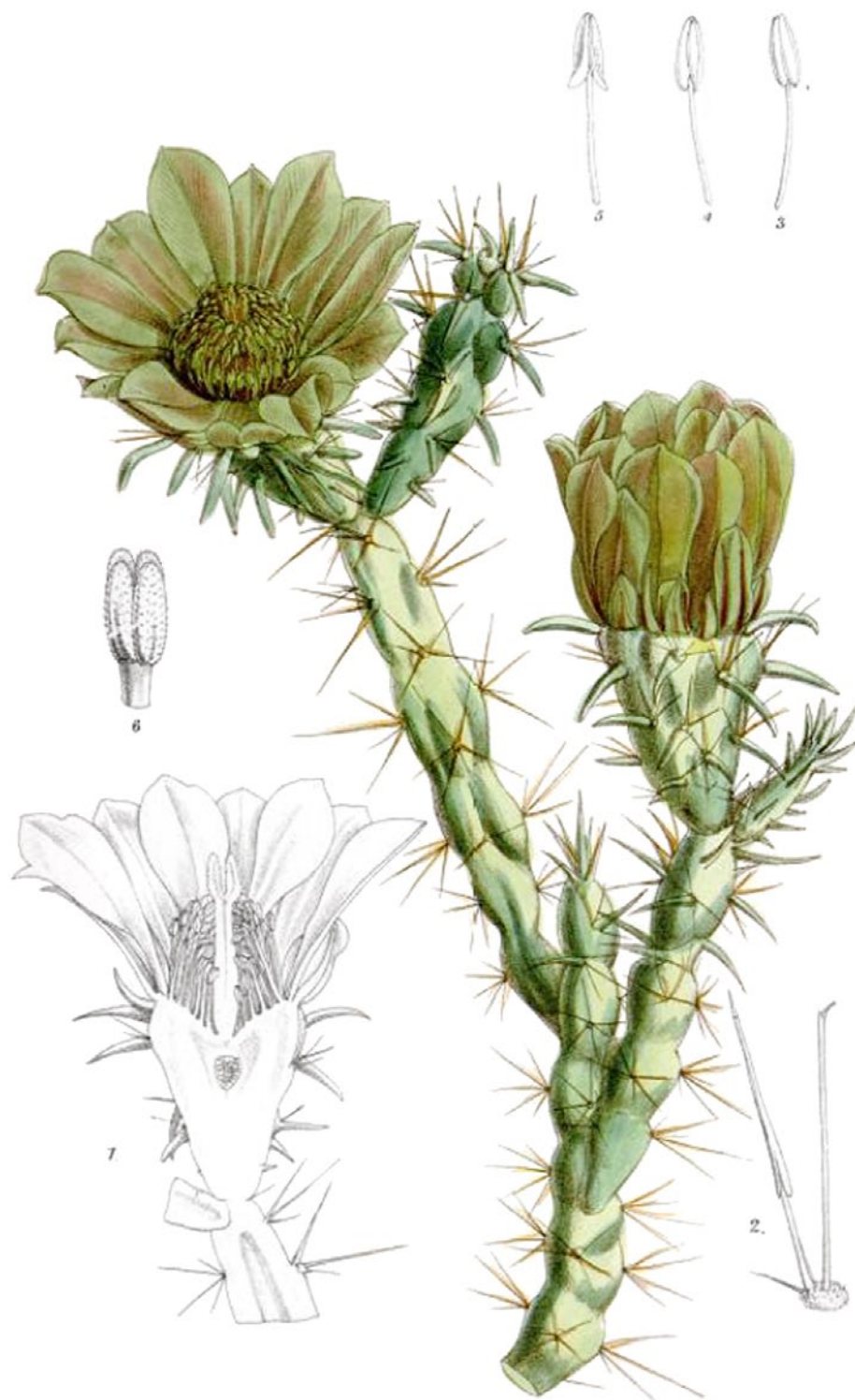
OPUNTIA *Davisii*; caule dense lignoso ramosissimo, ramis divaricatis adscendentibus cylindricis, articulis junioribus erectis elongatis basi attenuatis, tuberculis oblongo-linearibus prominulis, setis stramineis tenerrimis, aculeis interioribus 4–7 subtriangularibus rufis apice pallidioribus vagina straminea laxa fulgida indusiatis divergentibus seu reflexis, aculeis gracilioribus inferioribus 5–6, bacca ovata, pulvillis sub-25 setas stramineas aculeolosque paucos gerentibus, umbilico lato.—*Engelm.*

O. *Davisii*, *Engelm. in Whipple Exped. p. 49, t. xvi. f. 1-4.*

A small shrubby species, remarkable for the bronzy colour of the flowers, which have a peculiar metallic lustre, which cannot be produced on the Plate. I give it the name under which it is cultivated by Mr. Loder, in his most interesting and rich collection of *Cactææ*. It presents in some respects deviations from Engelmann's figure and description, but not more than might be expected to occur between young cultivated and old native specimens. In Engelmann's native specimen the spines are much larger and stouter, and the calyx wants the stout horn-like slightly recurved spines seen in the cultivated one (in which however all the fruits seen are described as sterile). I have preferred giving Dr. Engelmann's latin character for the species to one drawn up from the young cultivated specimens, to which I have restricted the English description.

O. *Davisii* is a native of the district of New Mexico, eastward and westward of the Tucumcari hills in lat. 35° N. and long. 104° W., on the head waters of the Canadian river, a branch of the Arkansas.

I am indebted to Mr. Loder for the specimen here figured, which flowered with him in July last. He informs me that
OCTOBER 1ST, 1882.



O. Davisii has been considered to be identical with *O. tunicata*, of which the flowers are unknown.

DESCR. A small much-branched bright-green glabrous shrub; branches spreading, joints elongate, slightly narrowed below, two to three inches long by half an inch broad; tubercles low, oblong, one-half to three-quarters of an inch long, not well defined, smooth; cushions low, rounded, about one-sixth of an inch in diameter, clothed with woolly felted hairs; spines four to seven, very unequal, slender and straight, the longest half an inch long, bright brown, covered with a deciduous glossy scarious sheath, often so loose as to give the spine a considerable thickness, the lower-most spine often becomes herbaceous green and much thickened, both on the joints and calyx. *Flowers* two and a half inches in diameter. *Calyx* turbinate, nearly two inches long, clothed, like the joints, with tubercles and spines. *Perianth-segments* in about three series pale bronzy green, glistening, outer rounded, sub-acute, intermediate oblong, inner obovate-spathulate, acute. *Stamens* very numerous and densely crowded, not half the length of the perianth-segments; filaments dark red; anthers yellow. *Stigma* partially exerted beyond the anthers, oblong, deeply four-lobed, pink.—*J. D. H.*

Fig. 1, Flower cut vertically; 2, spines; 3, 4, 5, stamens:—*all enlarged*.

(3914)

OPÚNTIA DECÚMBENS. DECUMBENT OPUNTIA;
or Prickly Fig.

Class and order.

ICOSANDRIA MONOGYNA.

(Nat. Ord.—CACTEÆ)

Generic Character.

Sepala numerosa ovario adnata foliiformia, summa plana brevia, intima petaliformia obovata, expansa, tubo supra ovarium nullo. *Stamina* petalis breviora; filamentis tenuibus, tactu subirritabilibus. *Stylus* cylindricus, basi constrictus. *Stigmata* 3—8 erecta crassa. *Bacca* ovata apice umbilicata, tuberculosa, sæpius spinifera. *Embryo* subspiralis, teretiusculus. *Cotyledones* semiteretes, germinantes foliace, planæ, crassa. *Plumula* parva.—Frutices; *trunco ramisque cylindricis aut compresso-articulatis, articulis ovatis aut oblongis, fasciculos aculeorum aut setarum, ordine quincunciali seu spirali dispositis, gerentibus*. Folia subulata sediformia, caducissima sub quoque fasciculo juniore. Flores e fasciculis aut marginibus articulorum orti, flavi, rubri aut albi. Fructus minuti vel magni, virides, flavi aut purpurei, sæpe ficiformes, edules, plerumque secundo vel tertio anno maturescentes. *Pfeiff*”.

Specific Character and Synonyms.

OPUNTIA *decumbens*; articulis decumbeitihtis compressis obovatis virulibus ad areolas Saturatoribus, areolis confertis laniferis, aculeis biformibus, superioribus setaceis flavidis, inferioribus 1—2 validis albidis. *Pfeiff*.

OPUNTIA *decumbens*. “*Salm. Hort. Dyck. p. 671.*” *Pfeiff*.
Enum. Cact.p. 154.

OPUNTIA *repens*. “*Karw.*”

OPUNTIA *irrorata*. “*Mart.*”

This plant has been for some time an inhabitant of the Cactus-house in the Royal Botanic Garden of Kew, where the



the flowering specimen was drawn in June, 1841. If we are correct in referring it to the *O. decumbens* of PFEIFFER (of which there cannot reasonably be a doubt), it is a native of Mexico; but that author puzzles us in saying, that the flowers are “rubri,” whereas in our plant they are of a decided, and not deep, yellow colour. He further adds, that the articulations are in the German collections always unarmed, though he describes them, perhaps from the notes of KARWINSKI, as spinous. That author (KARWINSKI) speaks of the spots of the articuli as being red, whereas they truly are, (according also with PFEIFFER’s statement,) of a deeper green than the rest of the articulation.

DESCR. Our *plant* is about two feet in length, disposed to be decumbent, of a lively green, the articulations obovate, thick, but much compressed, at and below the areolæ having a deep coloured, oblong spot: the *areolæ* composed of small pulvinate tufts, with one or two small spines often recurved, but at the base of the articulation is generally a solitary, acicular spine, about three-fourths of an inch long. *Flowers* three to four together. *Ovary* an inch or more long, green. *Petals* spreading, obovate, waved, yellow. *Stamens* and *stigma* also yellow.

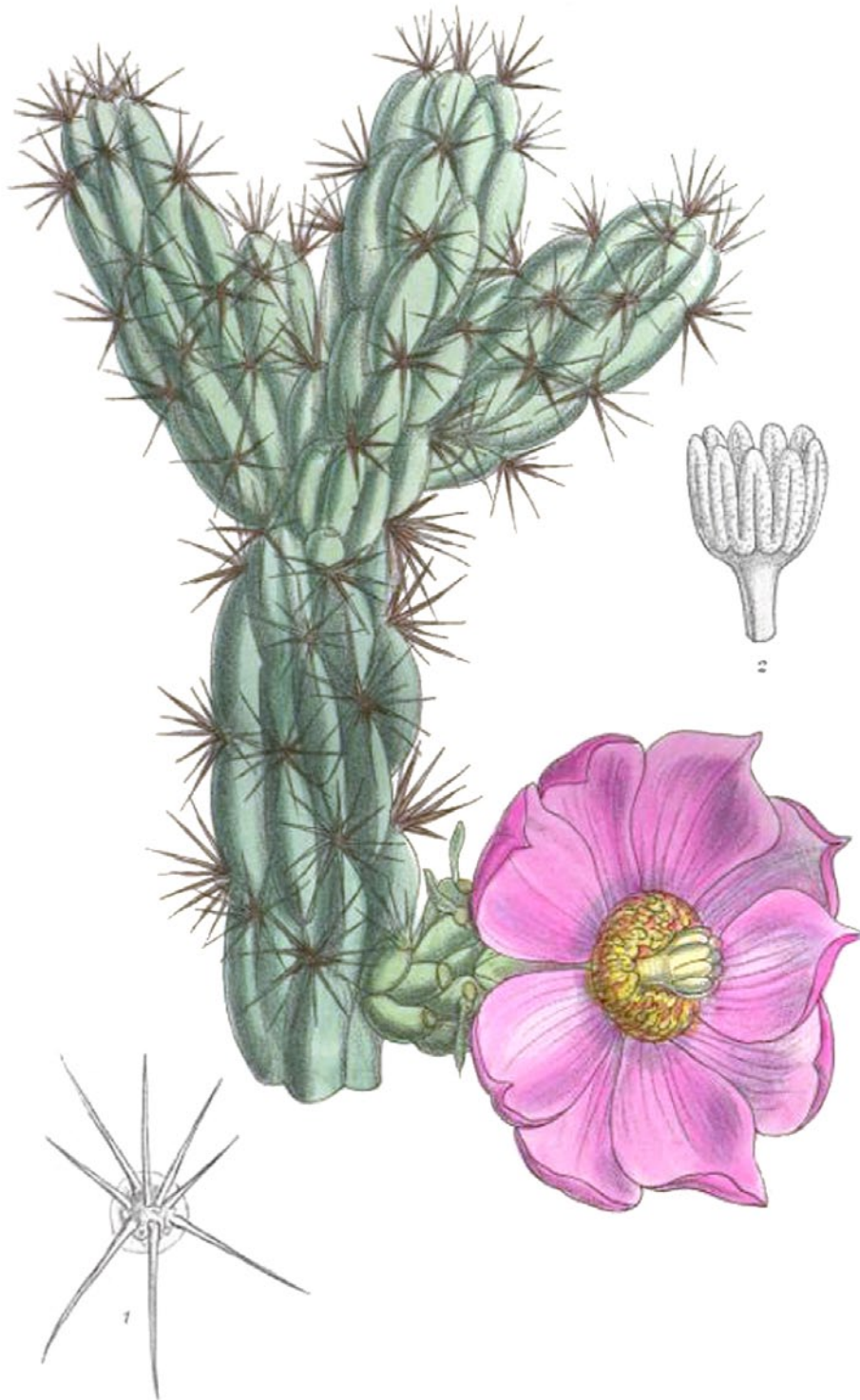
TAB. 8290.

OPUNTIA IMBRICATA.

Mexico and South-western United States.

CACTACEAE. Tribe OPUNTIEAE.

OPUNTIA, Mill.; Benth. et Hook. f. Gen. Plant. vol. i. p. 851.



Opuntia imbricata, DC. Prodr. vol. iii. p. 471; K. Schum. Monogr. Cact. p. 668; species ex affinitate *O. tunicatae*, Link et Otto, sed elatior et ab ea spinis numerosioribus brevioribus floribusque kermesino-purpureis valde diversa.

Frutex 1–2 m. altus vel *arbor* 3–4 m. alta, trunco 12–25 cm. crasso. *Rami* verticillati, patentissimi vel adscendentes; ramuli 4–16 cm. longi, 2–3 cm. crassi, cylindrici, glaucescenti-virides, tuberculati tuberculis costas breves 1·5–3·5 cm. longas compressas formantibus. *Pulvilli* depressi, breviter tomentosi. *Folia* teretia, patula, 1·2–2 cm. longa. *Aculei* 8–30, stellatim divaricati, 6–20 (raro 25–30) mm. longi, cornei vel fusci, vaginis arcte vestiti, 1–8 interiores longiores. *Flores* 5–7·5 cm. diametro, kermesino-purpurei. *Ovarium* 20–25-tuberculatum, superne parce foliosum; pulvilli setis paucis deciduis instructi. *Sepala* 8–13, obovata, obtusa vel retusa, viridia, purpureo-marginata. *Petala* 10–12, 2-seriata, obtusa vel retusa, breviter vel brevissime apiculata, kermesino-purpurea. *Stamina* numerosissima; filamenta purpurea; antherae luteae. *Stigmata* 8–10, lutea. *Fructus* subglobosus vel hemisphaericus, apice planus vel depressus, circiter 2·5 cm. diametro, tuberculatus, inermis, luteus.—*O. rosea*, DC. Prodr. vol. iii. p. 471; Mém. Mus. Hist. Nat. vol. xvii. p. 66, t. 15; Pfeiff. Enum. Diagn. Cact. p. 171; Foerst. Handb. Cact. ed. 2, p. 986, fig. 134. *O. arborescens*, Engelm. Bot. Wislez. Exped. p. 6; Pacif. Rail. Rep. vol. iv. pp. 51 et 58, t. 17, fig. 5, 6; t. 18, fig. 4; t. 24, fig. 12; t. 75, fig. 16, 17; Foerst. Handb. Cact. ed. 2, p. 984. *O. stellata*, Salm Dyck, Hort. Dyck. pp. 50 et 250; Engelm. in Bost. Journ. Nat. Hist. vol. vi. p. 208 (sub *O. arborescente*). *Cereus imbricatus*, Haw. Rev. Pl. Succ. p. 70.—N. E. BROWN.

Opuntia imbricata is a native of the dry interior of Central and Northern Mexico and of the adjacent regions to the north; its range extends through Arizona, New Mexico and Western Texas as far north as Pikes Peak in Colorado. For the material from which the figure now given has been prepared we are indebted to Sir E. G. Loder, Bart., in whose collection at Leonardslee, Horsham, a plant which he had himself collected in Colorado in 1878 flowered early in August, 1908. This species is a member of a small group of *Opuntias* characterised by their cylindric

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stems with short ridge-like compressed tubercles and by the sheaths that cover their spines. It is the commonest member of the group to which it belongs in European gardens, and was first introduced to cultivation in the earlier years of the nineteenth century. In spite of this, however, it is a plant whose flowers, which are very attractive but which will only expand under the influence of direct sunshine and unfortunately do not last long, are not often seen in the United Kingdom. Sir Edmund Loder informs us that his example at Leonardslee has but seldom flowered; when it did so in 1908 this happened during a time of very hot, sunny weather, and individual flowers only remained fully open during one afternoon, from about midday till sunset.

DESCRIPTION.—*Shrub*, 3–7 ft. or a small tree up to 15 ft. high, its trunk 5–10 in. thick with whorled spreading or ascending branches; twigs 2–10 in. long, about 1 in. thick, cylindric, glaucous green, covered with compressed tubercular ribs $\frac{3}{4}$ – $1\frac{1}{2}$ in. long; leaves terete, spreading, $\frac{1}{2}$ – $\frac{3}{4}$ in. long; spine-bearing cushions depressed, shortly tomentose; spines in clusters of 8–30, stellately spreading, 3–10 (rarely 12–15) lin. long, grey or tawny, closely sheath-clad, the inner 1–8 longer than the others. *Flowers* 2–3 in. across, bright purple. *Ovary* with 20–25 tubercles, sparingly leafy in the upper part; the cushions bearing numerous deciduous bristles. *Sepals* 8–13, obovate, obtuse or retuse, green with purple edges. *Petals* 10–12, in two rows, obtuse or retuse, shortly or very shortly apiculate, bright purple. *Stamens* very many; filaments purple; anthers yellow. *Stigmas* 8–10, yellow. *Fruit* sub-globose or hemispheric, the top flat or depressed, about 1 in. across, yellow, tubercled but without spines.

Fig. 1, cluster of spines; 2, stigmas:—*all enlarged*

OPUNTIA MONACANTHA, ONE-SPINED
OPUNTIA; OR PRICKLY FIG.

Class and order.

ICOSANDRIA MONOGYNA.

(Nat. Ord.—CACTEÆ.)

Generic Character.

Sepala numerosa, ovario adnata foliiformia, summa plana brevia, intima petaliformia obovata, expansa, tubo supra ovarium nullo. *Stamina* petalis breviora, filamentis tenuibus, tactu subirritabilibus. *Stylus* cylindricus, basi constrictus. *Stigmata* 3—8 erecta crassa. *Bacca* ovata, apice umbilicata, tuberculosa, sæpius spinifera. *Embryo* subspiralis, teretiusculus. *Cotyledones* semiteretes, germinantes foliaceæ, planæ, crassæ. *Plumula* parva.—Frutices, *trunco ramisque cylindricis aut compresso-articulatis, articulis ovatis aut oblongis, fasciculos aculeorum aut setarum, ordine quincunciali seu spirali dispositis, gerentibus*. Folia subulata sediformia, caducissima sub quoque fasciculo juniore. Flores e fasciculis aut marginibus articulorum orti, flavi, rubri aut albi. Fructus minuti vel magni, virides, flavi aut purpurei, sæpe ficiformes, edules, plerumque secundo vel tertio anno maturescentes. Pfeiff.

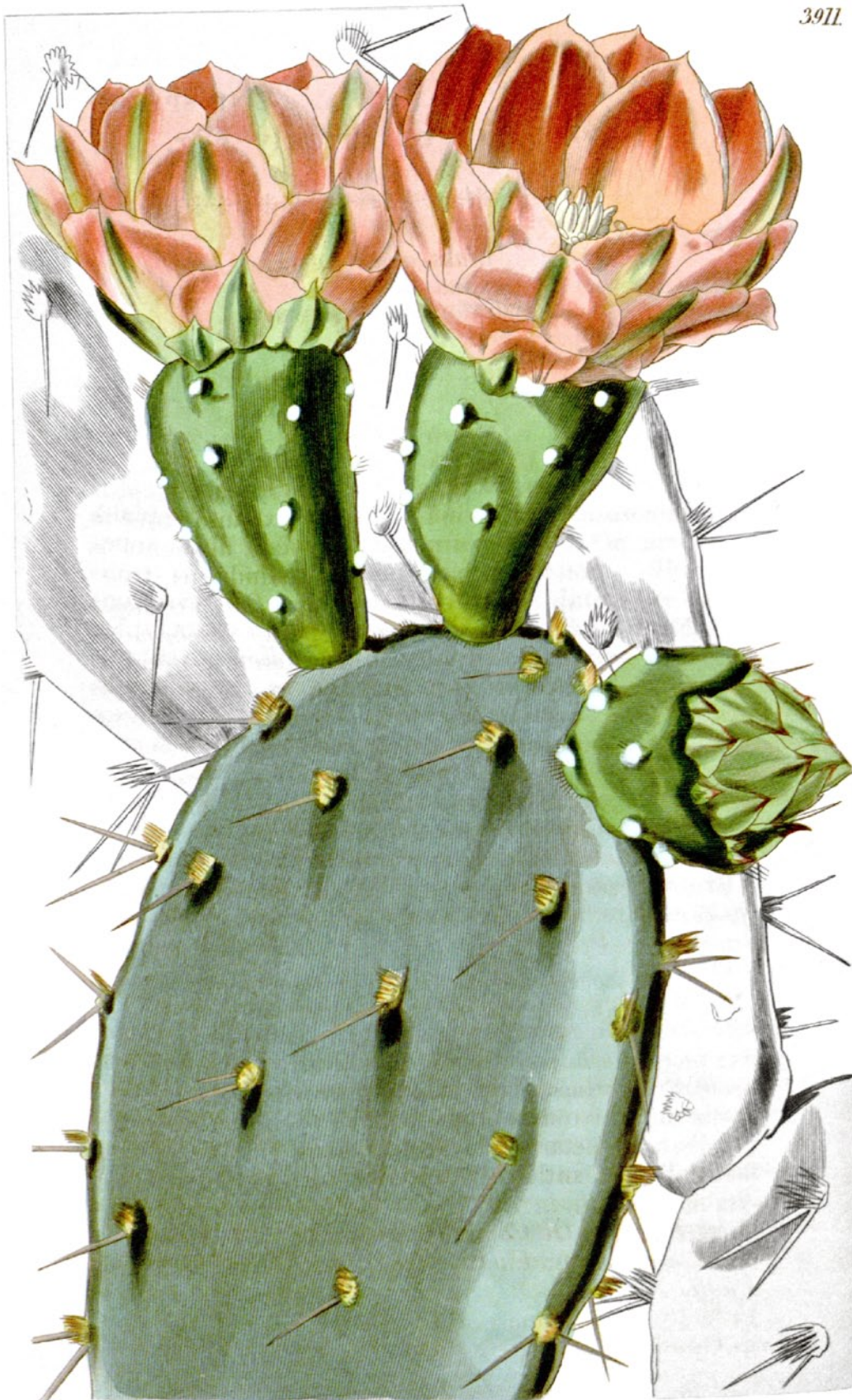
Specific Character and Synonyms.

OPUNTIA *monacantha*; erecta elata, articulis obovatis crassiusculis glaucis, spinis subsolitariis subvalidis flavofuscis ad basin setis copiosis brevibus flavescentibus, petalis fulvo-aurantiacis, ovariis pyriformibus viridibus fasciculis setarum flavarum sparsis.

OPUNTIA *monacantha*. "Willd. Enum. p. 34 (sub Cacto). Salm-Dyck, in litt." De Cand. Prodr. v. 3. p. 472 (excl. Syn. De Cand. Pl. Grass. n. 137. cum tab. 2.) Pfeiff. Enum. Cact. p. 164. (excl. Syn. Bot. Reg. t. 1726.)

CACTUS Opuntia Tuna. De Cand. Pl. Grass. cum Ic.

Rich



Rich as our gardens are in CACTEÆ, and much as these are prized by cultivators on account of the singularity of the forms of some and the exquisite beauty of the blossoms in others, it is greatly to be lamented that the synonymy of those that are described is so faulty, and that so many are ill characterized; every collection possessing many similar species under different names. With the opportunities we peculiarly enjoy, it may be expected that these difficulties in the way of a correct nomenclature will be obviated, although we almost despair of such an object being accomplished but by the help of good figures, of which, thanks to our excellent assortment of species in the Royal Gardens of Kew and the kindness of our friends, we are already in possession of a considerable number.

The present individual, especially, requires illustration. It is not uncommon in our stoves, and, at Kew, flowers readily during the summer months; and with us, and probably at other places, it has borne the name of *OPUNTIA Tuna*; it being unquestionably the *CACTUS Opuntia Tuna* of DE CANDOLLE (as regards his figure). This differs from the real *Tuna* of DILLENII, among other characters in its generally solitary spines. On this account it would appear that WILLDENOW distinguished it by the name of *monacantha*, which DE CANDOLLE himself, in his "Prodromus," has adopted;—but he has referred, inadvertently, it would seem, to his "Plantes Grasses," n. 137 cum Tab. 2, which is his *CACTUS coccinellifer* (the *OPUNTIA Tuna* of MILLER and PFEIFFER). PFEIFFER, on the other hand, quotes rightly the *C. Opuntia Tuna* of "Plantes Grasses," with its glaucous articulations and nearly solitary spines; but he unfortunately adds the synonym of *O. monacantha* of KER in Botanical Register, tab. 1726, which is a perfectly distinct plant from the original one of DE CANDOLLE, having differently-shaped articuli, of a bright, yet deep yellow-green hue, and strong, solitary spines, apparently quite destitute of the fascicles of setæ at their base.

It will be observed, that the spines of the present species, though usually solitary on the disk of the joints, are often geminate, or even fasciculate, at the margin.

The colour of the flower of our plant is deeper than the figure of DE CANDOLLE, but that appears to be the only difference between them. The species is supposed to be a native of Brazil.

TAB. 7046.

OPUNTIA polyacantha.

Native of the United States.

Nat. Ord. CACTEÆ.

Genus OPUNTIA, Mill.; (*Benth. et Hook. f. Gen. Pl. vol. i. p. 851.*)

OPUNTIA (Ellipticæ) *polyacantha*; prostrata, radice fibrosa, articulis adscendentibus ellipticis ovatis obovatisve compressis, foliis minutis subulatis, pulvillis subconfertis pallide tomentosis setosis et armatis, aculeis radiantibus albidis 1–5 interioribus longioribus patulis albidis v. rufescentibus, floribus sulphureis raro purpurascentibus, ovario obovoideo pulvillis aculeatis instructo, sepalis tubi ad 13 interioribus obovatis, petalis 12–20 obovato-orbiculatis retusis apiculatis, stigmatibus 5–8 viridibus in capitulo profunde sulcatum dispositis, bacca ovoidea v. subglobosa pulvillis albo-tomentosis setosisque instructa, seminibus magnis late et subacute marginatis.

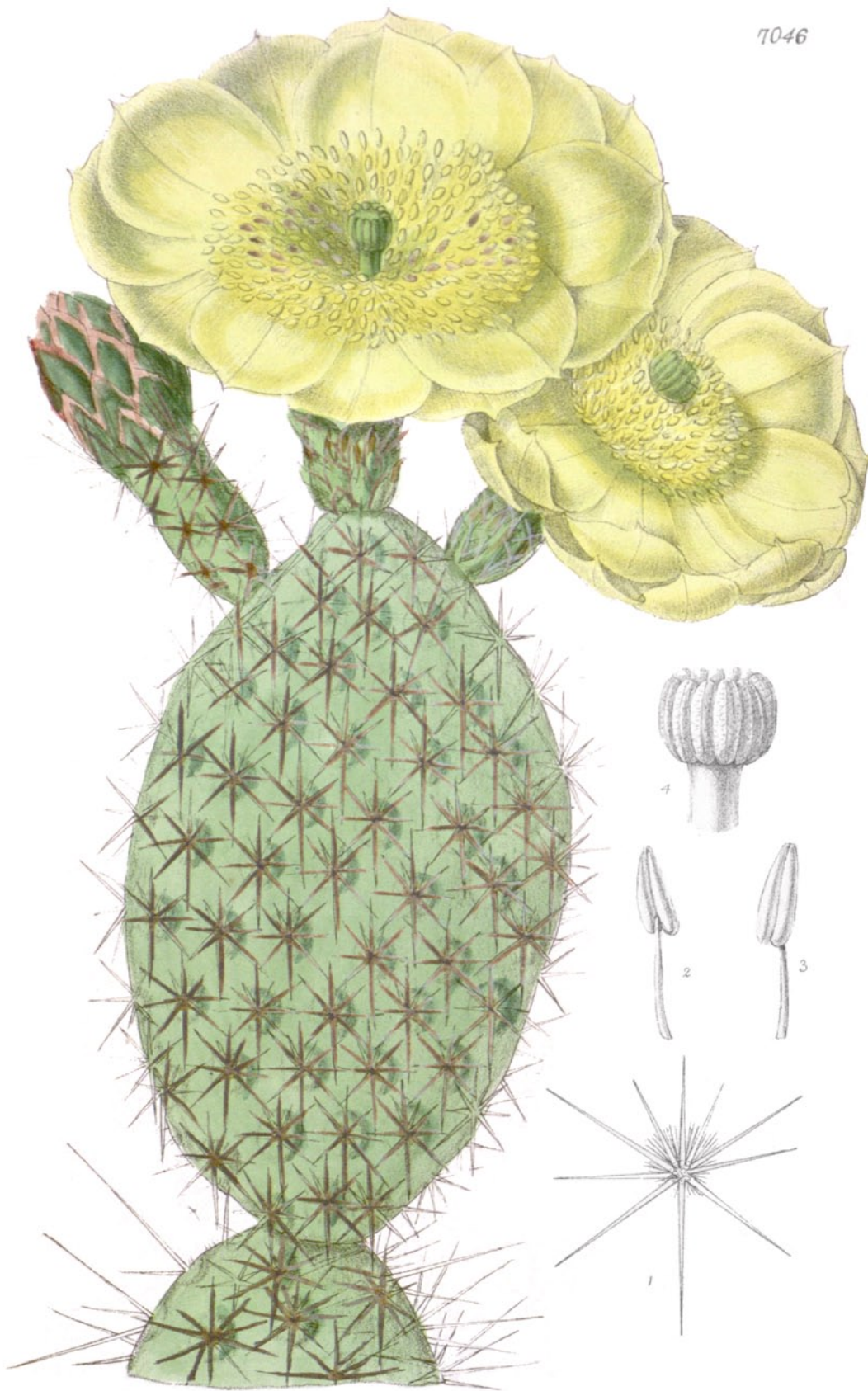
O. polyacantha, Haworth *Suppl. Plant. Succulent.* p. 82 (1819).

O. missouriensis, DC. *Prodr.* vol. iii. p. 472; Engelmann in *Proc. Amer. Acad.* vol. iii. p. 299; in *Bot. Whipple Exped.* vol. iv. p. 44, t. xiv.; in *Bot. King's Exped.* vol. iii. p. 118; in *Bot. Simpson's Exped.* p. 412; in *Bot. Wheeler's exped.* p. 129.

Cactus ferox, Nutt. *Gen. N. Amer. Pl.* 296, non Willd.

This is the third hardy *Opuntia* figured in the BOTANICAL MAGAZINE, the others being *O. vulgaris* (Tab. 2393) and *O. Rafinesquii* (Tab. 7041). It was discovered by Nuttall on the Upper Missouri in 1811, and called by him *Cactus ferox*, a specific name that might well have been retained, for Engelmann states that the original form greatly deserves it, were it not that there is an earlier *C. ferox*, of Willdenow, a native of tropical America, which also being an *Opuntia* claims the name. The present plant was first published by Haworth in 1811 under the very appropriate name of *O. polyacantha*, which was changed to *O. missouriensis* by De Candolle for no assigned reason. In this De Candolle has been followed by Engelmann in his various works on the American Cacti, who strangely altogether omits any reference to Haworth's name or work. According to the last-named author, it was cultivated at Chelsea, in 1814.

Opuntia polyacantha is a very wide-spread and variable
MARCH 1ST, 1889.



species. Engelmann describes it most fully in his account of the Cacti of Whipple's Expedition along the 35th parallel, where however, through some oversight, he places it in the section with tuberous roots, whilst describing these as fibrous. He there states that it extends from the Upper Missouri to the 49th degree of N. Lat., and westwards from the Missouri to 112° E. In later publications he gives the Salt Lake Valley, where it ascends to 6500 ft., and New Mexico. In Kew Herbarium there are species from the plains of the Sacketchawan in Lat. 52° N., collected by Bourgeau, and from British Colombia, between the Walla Walla and Colvile, collected by Lyall.

Engelmann distinguishes six varieties, by the form of the joints, number length and colour of the spines, size of the berry, and size and margins of the seeds, but I fail to refer the Kew plant definitely to any one of these more than another. The Kew specimens flowered in the Royal Gardens in a cold frame during the summer months. It had stood unprotected for a good many years without flowering.—*J. D. H.*

Fig. 1, Cluster of spines; 2, back, and 3, front view of stamens; 4, stigmas:—*all enlarged.*

TAB. 7041.

OPUNTIA RAFINESQUII.

Native of the United States of America.

Nat. Ord. CACTEÆ.

Genus OPUNTIA, Mill.; (*Benth. et Hook. f. Gen. Pl. vol. i. p. 851.*)

OPUNTIA (elliptica) *Rafinesquii*; diffusa, radice fibrosa, articulis obovatis v. suborbiculatis, foliis subulatis patulis, papillis subremotis albido v. griseo-villosis setas graciles gerentibus plerisque inermibus, aculeis paucis sæpissime marginalibus validis rectis albis uno alterave graciliore deflexo adjecto, alabastris conicis acutis, ovario clavato pulvillis 20–25 griseo-villosis rufo-setosis instructo, sepalis sub 13 oblanceolatis acuminatis interioribus petaloideo-marginatis cuspidatis, petalis 10–13 obovatis erosis denticulatis sulphureis, stigmatibus 7–8 erectis pallide flavis, bacca obovoidea subnuda pulposa purpurascente, umbilico infundibulari, seminibus compressis.

O. Rafinesquii, Engelm. in *Pacific Rail. Rep.* vol. iv. p. 41, t. 10, f. 3–5, t. 22, f. 7, 8; *Synops. Cact.* p. 295; *Bot. Works*, p. 143, 164; *Torrey Bot. Bull.* vol. ii. t. 34; *Lemaire Ill. Hort.* 15, *Misc.* 49 cum *lc.*; *Haage & Schmidt in Rev. Hort.* 1868, p. 90, f. 10, 11; *Gray Man. Bot. N. U. S.* p. 185; *Porter Flor. Colorad.* p. 49; *Först. Handb. Cact.* p. 923, fig. 126; *Hemsley in Garden.* vol. xi. . 274.

O. macrantha & *O. caespitosa*, Raf. in *Bull. Bot. Genev.* 1830, p. 216; *Fl. Med.* vol. ii. p. 247; *Pfeiff. Enum. Cact.* p. 146.

O. vulgaris, Torr. & Gr. *Fl. N. Am.* vol. i. p. 535 in part; *Emerson Trees of Massachus.* p. 424.

O. vulgaris, var.? *Rafinesquii*, *Gray Man. Bot. Ed. 2*, p. 136.

Cactus Opuntia, *Torrey Fl. N. States*, p. 466 in part.

The fact that Cacti are sufficiently hardy to bear English winters has long been known, and is set forth in this work when figuring *Opuntia vulgaris* (*Cactus Opuntia*, t. 2393), but it is comparatively of late that their cultivation in the open air with protection from damp only in the winter months has been successfully pursued to any extent; and when the number of large and brilliantly flowered species that inhabit countries to which such treatment in England is well adapted is considered, a very great development of this branch of Horticulture is to be anticipated. *O. Rafinesquii* has a wide range in North America, from Wisconsin in the north and Kentucky in the east, and probably to Louisiana and Texas in the south and west. For a full

FEBRUARY 1ST, 1889.



account of the species and its numerous forms, I must refer to Engelmänn's works enumerated above, and from which the characters of this species are derived. Dr. Engelmann enumerates no fewer than fifty *Opuntias*, natives of the United States of America, of which *Rafinesquii* is the most widely distributed and, as might be expected, the most variable. It comprises five local forms, of which three are western and two eastern. The latter are var. *microsperma*, which has usually been confounded with *O. vulgaris*, and var. *grandiflora*, a native of Texas. The plant here figured is no doubt the first of these, distinguished by its large flowers, which are often red in the centre, and few spines (which are sometimes entirely absent).

The plant with which *O. Rafinesquii* was so long confounded is the *O. vulgaris*, the only American species north of Mexico with which Linnæus was acquainted; it is confined to the west of North America, east of the Alleghany Mountains, where it extends from Massachusetts to Florida, and is the eastern representative of *Rafinesquii*, which is only found to the westward of that range. Engelmann distinguishes *vulgaris* from the latter plant by its smaller size, paler colour, small pulvilia, usual absence of spines, smaller flowers with less numerous parts, and especially by the short thick and more or less appressed leaves.

O. Rafinesquii has been cultivated for many years at Kew, flowering annually all through the summer. It was no doubt one of the many contributions of Cacti received from the late Henry Shaw of St. Louis, the founder of the Shaw Botanical Gardens and School of Botany in that city, and to whose munificence botanists owe the publication of the collected works of G. Engelmann.—*J. D. H.*

Fig. 1 and 2, Stamens; 3, style and stigmas; 4 and 5, seeds:—*all enlarged*.